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**ARCHEOLOGICAL MONITORING OF THE
JACKSON AVENUE TO THALIA STREET
(PHASE 1) FLOODWALL PROJECT IN THE
CITY OF NEW ORLEANS , ORLEANS PARISH,
LOUISIANA**

FINAL REPORT

June 3, 1988

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Prepared for
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Floodwall	Natural Levee	Robin Street Site
		Site 16 OR 116
		Site 16 OR 117
		Stave Pile
		Water Street
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ABSTRACT

This report presents the results of archeological monitoring of the Jackson Avenue to Thalia Street floodwall alignment, along the Mississippi River in New Orleans, Louisiana. The project area is located on a point bar upriver from the Vieux Carre, where continuous lateral accretion has increased the land area on the left descending (east) bank since the original settlement of the City of New Orleans. Work consisted of the monitoring of the general contractor's preconstruction trench within the floodwall right-of-way. Two sites were designated along the alignment: 16 OR 117 was found at the foot of St. James Street, and 16 OR 116 was located at the foot of Robin Street (presently Euterpe Street). These sites consisted of late nineteenth century artifact deposits and structural remains. The artifacts found at 16 OR 116 appear to derive from the area's use as a nuisance wharf; this site is considered to be eligible for nomination to or inclusion in the National Register of Historic Places (36 CFR 60.4). No further work is recommended at this time. Site 16 OR 117 demonstrates that a wharf or a similar structure was located at the foot of St. James Street. The few artifacts that were collected at this site appear to have been associated with the structure that was present. This site is not significant according to the National Register criteria and no further work is warranted.

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Per Ms. Caroline Albright, Army Corps of
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NEW ORLEANS DISTRICT, CORPS OF ENGINEERS

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REPLY TO
ATTENTION OF:

May 20, 1988

Planning Division
Environmental Analysis Branch

To The Reader:

This study was funded by the U.S. Army Corps of Engineers, New Orleans District for compliance with stipulations contained in a Memorandum of Agreement (MOA) concerning the Mississippi River floodwalls in the Port of New Orleans. The MOA was ratified by the Chairman, Advisory Council on Historic Preservation in 1982. Archeological monitoring provided the basis of compliance with Federal historic preservation laws.

The 1987 field work was conducted in accordance with a monitoring plan developed in 1985. This plan identified potentially significant historic structures anticipated in the impact area of the proposed floodwall alignment. One of the predicted archeological sites, a nineteenth century nuisance wharf, was indeed located at the foot of Euterpe Street and is eligible for the National Register of Historic Places.

The New Orleans District has reviewed and accepts this report. We concur with the findings and recommendations and compliment R. Christopher Goodwin and Associates, Inc. on all phases of the required work.

Caroline H. Albright 5/16/88
Caroline H. Albright
Authorized Representative
of the Contracting Officer

Cletis R. Wagahoff 5/20/88
Cletis R. Wagahoff
Chief, Planning Division

=====

ACKNOWLEDGMENTS

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We would like to express our gratitude to institutions and individuals who helped us in the research and production of this report. We extend our thanks to Ms. Caroline Albright, Contracting Officer's Representative, Cultural Resources Section, Environmental Analysis Branch, Planning Division, U.S. Army Corps of Engineers, New Orleans District, for her assistance and guidance throughout this project. Carol T. Poplin supervised field monitoring at 16 OR 116 and 16 OR 117 during the 1987 season. Field investigators included Carol T. Poplin, John A. Turner, and E. Jeanne Harris. Laboratory cataloging, data entry, and preliminary table compilation were conducted by John A. Turner. Donna Livaudais prepared line drawings and reproductions of artifacts, and Hobert Creasy prepared maps and figures for this report. Ana Maria Chandler and Lyn O'Brien Dale produced this report in its present form. Dr. Lawrence Hewitt and Thomas L. Tuohy served as editors.

Finally, we express our gratitude to John Magill and Jessica Travis of the Historic New Orleans Collection and Wayne Everard of the New Orleans Public Library, for their assistance in providing and locating information on tenure and history of the nineteenth century river front development.

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CHAPTER I

INTRODUCTION

Pursuant to Contract DACW29-86-D-0093, Delivery Order 05, R. Christopher Goodwin & Associates, Inc. conducted intensive archeological field monitoring and recordation during the excavation of the general construction contractor's initial inspection trench at the Jackson Avenue to Thalia Street floodwall alignment (Figure 1). The floodwall alignment is located on the east (left descending) bank of the Mississippi River, parallel to the inner track of the New Orleans Public Belt Railroad (NOPBR). Based on the archeological monitoring plan prepared for the U.S. Army Corps of Engineers, New Orleans District, by R. Christopher Goodwin & Associates, Inc. (Goodwin et al. 1985), it was determined that two localities along the Jackson Avenue to Thalia Street floodwall alignment might contain significant historic structures and associated artifacts. These two localities were located at the foot of Robin Street (present-day Euterpe Street), and at the city block between St. James and Market Streets. The purpose of the present investigation was to locate and to identify potentially significant cultural resources at these localities, within the area that might be compromised by floodwall construction. Monitoring of the localities was conducted during October and December, 1987.

Description of the Project Area

The Jackson Avenue to Thalia Street floodwall alignment is located between wall line station 0+00 at Jackson Avenue and wall line station 53+87.53 (baseline station 387.65), located 1081 feet (328 meters) downriver from the foot of Euterpe Street. The total length of the alignment is 5,387 feet (1,633 meters). The monitored areas were located at the foot of Robin (Euterpe) Street between wall line stations 46+00 and 47+50, a distance of 150 feet (45 meters); and, in the block from St. James to Market Streets, between wall line stations 27+19.95 and 30+82.69, a distance of 362.74 feet (110 meters).

The entire floodwall alignment is situated within the active riverine environmental zone. The riverbank adjacent to the floodwall alignment historically has been subjected to periodic episodes of deposition and erosion. Much of the land in this area is batture deposit laid down during the eighteenth and nineteenth centuries (Reeves and Reeves 1983). The present alignment is located on the elevated levee

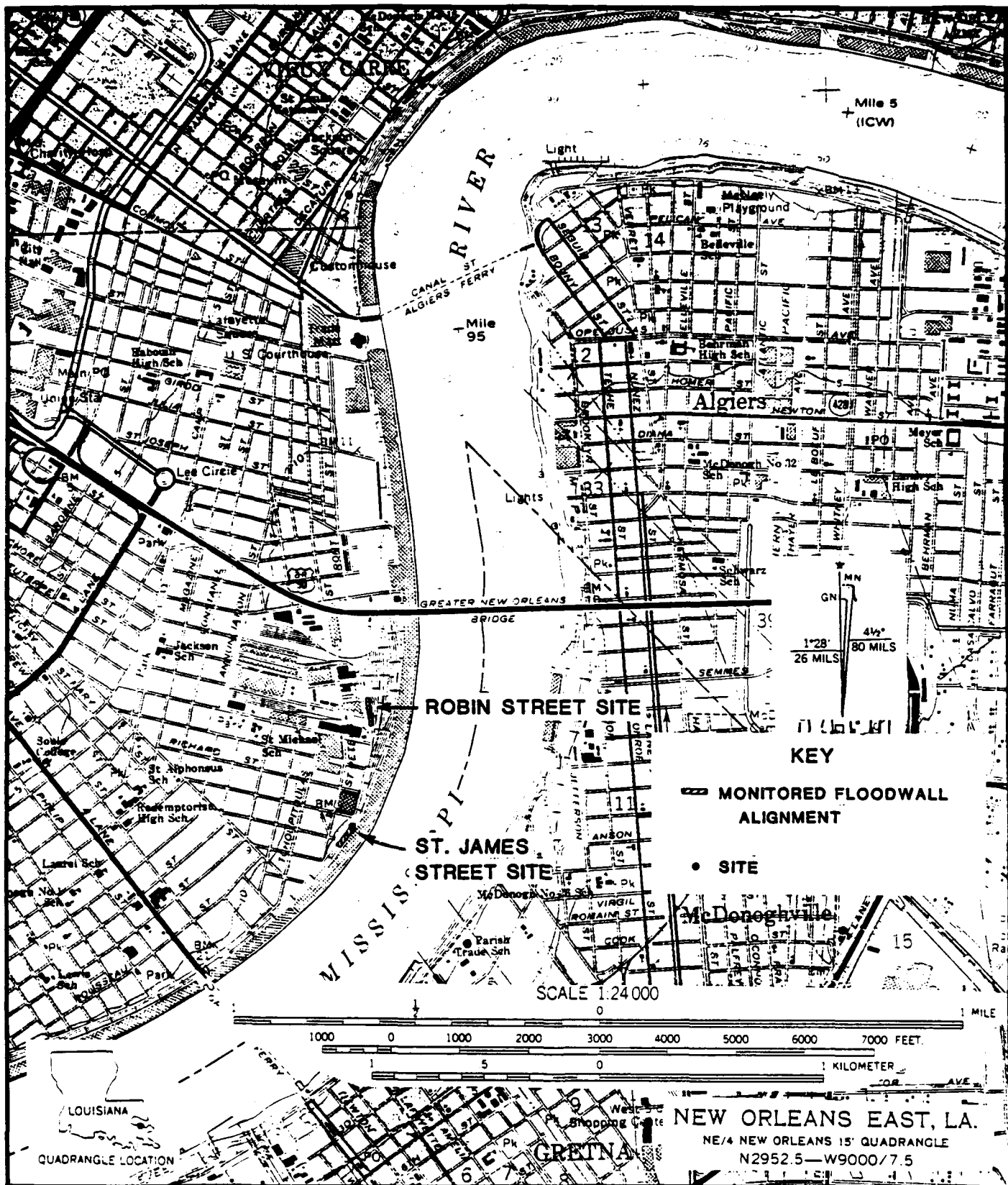


Figure 1. Map of the Project Area showing the location of the Jackson Avenue to Thalia Street floodwall alignment (USGS New Orleans East 7.5 minute quadrangle).

(approximately 10 feet N.G.V.D.). Presently, this area is used primarily by the railroads that service the wharves located along the bank of the river.

Format of this Report

This report begins with a description of the project area. Chapter II contains a description and history of the floodwall alignment project. Chapter III includes a discussion of the natural and historical setting, an historical overview of the New Orleans riverfront, and a block-by-block history of the project area. The research design for the project is found in Chapter IV. Archeological field methods and results are discussed in Chapter V. Inspection trench monitoring and the problems associated with it are discussed; the results of monitoring, and descriptions of the sites encountered, then are reviewed. Chapter VI presents the results of comprehensive laboratory analyses of glass and ceramic artifacts, nails, bricks, and faunal remains found at sites 16 OR 116 and 16 OR 117. Finally, conclusions are drawn and recommendations are made in Chapter VII. Two appendices include the Scope of Services and Louisiana state site forms.

CHAPTER II

HISTORY OF THE PROJECT

Description of the Project

The present study is part of the project named: Mississippi River Levee, Orleans Levee District, Item M-97.2-L to M-95.6-L, Jackson Avenue to Thalia Street Floodwall, Orleans Parish, Louisiana, Phase 1. This project entails the construction of a reinforced concrete floodwall and its accompanying swing and roller gates. The Jackson Avenue to Thalia Street floodwall will connect two previously constructed alignments: Louisiana Avenue to Jackson Avenue at the upriver end, and Thalia Street to Poydras Street at the downriver end. The section of the floodwall presently under construction is part of a comprehensive floodwall protection system for the city of New Orleans begun in the 1970s by the U.S. Army Corps of Engineers, New Orleans District. When completed, the floodwall and existing earthen levees will form a major protective barrier against floods. In addition to providing protection from flooding, the wall also will prevent subsurface seepage. Protection from flooding at predetermined traffic and railroad crossings will be provided by swing and roller gates.

The wall itself will consist of two structural elements: massive concrete monoliths, and metal sheetpiling. The monoliths are joined together to form the above-ground barrier; they rise 12.5 feet (4 meters) above the ground surface, and descend as much as 6.25 feet (2 meters) below the ground surface. The sheetpiling represents the underground water barrier; it is composed of individual interlocking pilings sunk between 31 and 41.5 feet (9.6 to 12.5 meters) below the ground surface. The sheetpiling is embedded in the concrete monoliths at the top of the pilings. As a result, the floodwall alignment will have substantial if localized subsurface impact on any extant cultural resources.

Archeological monitoring of the Jackson Avenue to Thalia Street floodwall alignment was undertaken applying a research design provided in the report entitled Archeological Monitoring Plan for Four Floodwall Projects in the City of New Orleans, previously prepared for the New Orleans District by R. Christopher Goodwin & Associates, Inc. (Goodwin et al. 1985). This monitoring plan provided information on each segment of the floodwall alignment, which included an historical overview of each segment scheduled for monitoring. A predictive analysis of cultural remains reviewed historical

activities and structures within each block of the impact area. This analysis was used during monitoring and subsequent study as a guide to interpret the features and artifacts recorded during monitoring.

The comprehensive floodwall project, of which this report represents one part, constitutes the first large-scale linear subsurface archeological investigation along the riverfront corridor of New Orleans. The Jackson Avenue to Thalia Street floodwall alignment is the third archeological field project conducted as part of the larger comprehensive assessment. The first field study (Goodwin et al. 1985) included archeological monitoring of the Independence to Inner Harbor Navigation Canal alignment, the Barracks to Montegut alignment, and the upriver portion of the Canal to Toulouse Phase II alignment. The second field study was conducted between Montegut Street and Independence Street (Goodwin et al. 1987). The Jackson Avenue to Thalia Street archeological investigation is the final field study of this project. The only earlier investigation within the alignment under consideration here was a pedestrian survey conducted by J. Richard Shenkel along the Canal-Toulouse alignment in 1976 (Shenkel and Sternberg 1976).

CHAPTER III

THE NATURAL AND HISTORIC SETTING

The Natural Setting

The Jackson Avenue to Thalia Street floodwall alignment is located on the east (left descending) bank of the Mississippi River, within the active riverine environmental zone of the modern delta. Natural levee deposits associated with the modern (Balize) delta overlies deposits of the St. Bernard delta complex. The floodwall alignment varies in distance from approximately 100 to 120 feet from the river; it lies atop of the natural levee. The riverbank area has been subjected historically to periodic episodes of deposition (batture formation) and erosion.

The natural levees of the Mississippi River are typically wedge-shaped in cross-section with the thickest part of the wedge close to the river (Saucier 1962). Natural levee deposits located along the Mississippi River in New Orleans range from approximately 8 to 12 feet thick, and they have an average elevation of about 12 feet (Dobney et al. 1987). At New Orleans, the levee is approximately 1.5 miles wide, from river bank to backswamp. The coarsest materials normally are encountered near the levee crest, where sediments consist of stiff silty clays interspersed with thin lenses of silt. Clay content increases toward the backswamp, as does the amount of organic material. Levee sediments tend to be well oxidized and to contain numerous iron and manganese nodules. Color is generally tan or light gray-brown, with red, yellow, or black mottling (Saucier 1962).

The Jackson Avenue to Thalia Street floodwall alignment right-of-way is located on a point bar upriver from the Vieux Carre. With the exception of occasional and minor riverbank erosion during high water stages, the batture has expanded by natural accretion. During the nineteenth century (1800-1840), the intersection of Tchoupitoulas and Decatur Streets marked the riverbanks of the Mississippi above New Orleans. This expansion of the batture incorporates nearly the entire project area and extends from the intersection of Tchoupitoulas and Decatur Streets to Adele Street (Reeves & Reeves 1983:35-36). Accretion of the riverfront lands created a long series of legal disputes over ownership and land use rights (Reeves and Reeves 1983:36). As new batture lands were formed during the eighteenth and nineteenth centuries, property owners attempted to extend their claims to the batture area. The city, on the other hand, considered the batture to be public property. Legal battles over this

new and valuable land continued throughout most of the nineteenth century (Goodwin et al. 1985:25).

The Historic Setting

The history of the port of New Orleans did not begin in 1803 with the Louisiana Purchase. The French and Spanish colonial occupations had tremendous influence on the social, economic, and political development of New Orleans. However, it was not until after the Louisiana Purchase that New Orleans evolved from an outpost of colonial government to a bona fide center of trade and commerce. In addition, the land within the present study area was largely undeveloped until the American period.

After the Louisiana Purchase, major changes in growth and development occurred within the city of New Orleans. Between 1803 and the 1840s, the population of the city increased twelve-fold (Reeves & Reeves 1983:31). Some of this growth was the result of the immigration of thousands of people from St. Domingue (Haiti). In addition, "The Germans and the Irish arrived in such great numbers that for the first time in the city's history, there were more white people than black" (Goodwin et al. 1987:172). Other immigrants included young American merchants, who created networks of trade and commerce through land speculation and commercial ventures. These new immigrant populations were large, and consisted of people with diverse occupational skills and social standing (Goodwin et al. 1987:172).

Two events occurred during this period that are germane to the study area under discussion. The first event was the subdivision in 1807 of the Livaudais Plantation known as "Annunciation." The second was the beginning of the series of aforementioned disputes that developed over the ownership of batture land. The first event established the pattern of growth for the city. The subdivisions became "faubourgs," or suburbs of the city. The upriver portions of Faubourg Annunciation initially were incorporated into the city of Lafayette. Later, in 1852, Lafayette was incorporated into districts of the City of New Orleans.

The expansion of the batture in areas along the Mississippi River created problems for riverfront landowners and business operators. The series of legal battles over the ownership of the batture land began in 1820 with the Livingston case in Faubourg St. Marie. Edward Livingston and Jean Gravier began to develop the batture in front of the Gravier Plantation, and in a court decision, they gained ownership to the land despite the outrage of their neighbors. President Thomas Jefferson interceded because the

territorial court was giving away land that was actually the rightful property of the United States of America. These areas became public property. Similar disputes arose as the batture steadily grew along the project area. Cases such as that of Jacques Livaudais and Robin de Logny concerning the batture designated as public property between Race and Nuns Streets, were resolved in the city's favor (Reeves & Reeves 1983:57). The expanding riverfront area remained the property of the City of New Orleans until after the Civil War, when the land was surveyed and sold at auction because the City no longer had the funds to maintain public lands. These legal settlements established a venue for the future improvement and expansion of the Port of New Orleans. Economic changes affecting the city during the antebellum period after 1830 were related in part to a new mode of transportation, the steamboat. Trade with the developing West gained the city of New Orleans a place among world markets. Flatboats carrying cargo from the midwestern states docked in New Orleans, where the cargo was transferred to ocean-going vessels. This created jobs for merchants and dockworkers alike. During this period, the city constructed docks from Louisiana Avenue downriver to Poland Avenue (Reeves & Reeves 1983).

As indigo and tobacco, the cash crops of the previous decade, declined in importance, cotton and sugar became the staple crops of Louisiana. During the nineteenth century, shipment of these agricultural commodities from New Orleans strengthened the economy of the City and resulted in the construction of specialized structures along the riverfront (Clark 1970:299). Cotton presses were used to compress cotton bales for maritime shipping, allowing more cotton to be shipped at a lower cost. The presses also served as storage areas for baled cotton prior to shipment (Goodwin et al. 1987:22). During the early part of the nineteenth century, most cotton presses were located in the Faubourg St. Marie, the present-day Central Business District. By the middle of the century, they had moved further upriver.

During the last decades of the nineteenth century, railroads came to dominate the riverfront landscape. The Civil War forced the city to forfeit its management of the docks for lack of money (Reeves & Reeves 1983:114). The riverfront docks were leased out to private companies, including railroad companies, which paid the city a fee for use of the dock and assumed the costs of maintenance. After the Civil War, dock construction also was leased. The arrival of the railroads supplemented, rather than supplanted, the orientation of the riverfront towards maritime trade; rail transportation brought a higher volume of goods into the city, while the Mississippi River remained the preferred route for shipment of bulk cargoes.

While the railroads augmented the local economy by expanding the transportation network of which New Orleans was the hub, they also created local problems. The private rail lines charged extremely high tariffs and laid their tracks on levee lands which previously had been considered public property. In 1906, the construction of a city-owned local belt rail line finally brought this area back under public management.

A Description of the Monitored City Street Blocks

The catalog of historic structures in the Jackson Avenue to Thalia Street floodwall segment (Figure 2) was prepared for the report entitled Archeological Monitoring Plan for Four Floodwall Projects in the City of New Orleans (Goodwin et al. 1985:32-34). Expectations developed for this segment indicated that remains from the Municipal Ice Manufacturing Company would be encountered between St. James and Market Streets. A nuisance wharf was identified at the foot of Robin Street, and an unusual wharf was expected at the foot of Thalia Street.

In the original monitoring plan for the floodwall alignment, Thalia Street was designated as an area to be monitored. The location of the proposed floodwall is on batture land that had not developed until 1830. During this period, the docks along this section of the river were longer than they were wide. This design was necessary to accommodate ships fitted for ocean travel. In the years that followed, newly constructed docks were added and repairs were made to older docks along the riverfront (Reeves & Reeves 1983:103). As the batture continued to grow, docks were moved closer to the river. By 1870, wharves in the vicinity of Thalia Street were being constructed riverside of the proposed floodwall right-of-way. This land was purchased by Grenville M. Dodge in 1881 on behalf of the Texas & Pacific Railroad; it became a railroad yard. This land use pattern has remained until the present day (Reeves & Reeves 1983:201).

The period of growth for the port of New Orleans required a standardization in construction specifications; this standardization was orchestrated by the City Surveyor. Although the variety of wharf types increased, their construction remained similar to facilitate growth along the river. Presumably, the presence of unusual wharves on historic maps exemplifies the construction of more complex and adjoined wharves during the mapping of the port. This would aid in the explanation of the unusual wharf at the foot of Thalia Street.

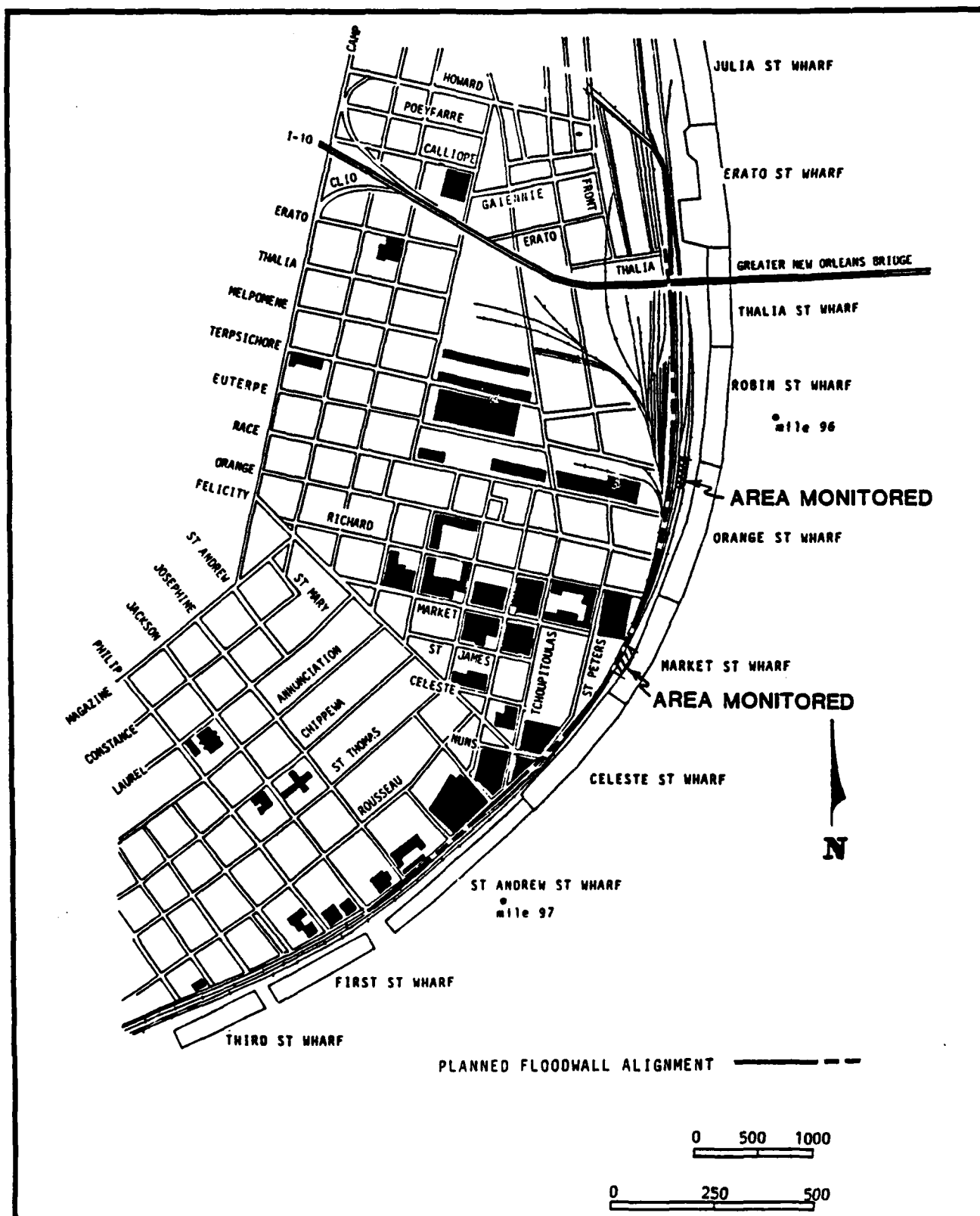


Figure 2. Street Map of the Lower Garden District between Philip and Howard, showing the location of the Jackson Avenue to Thalia Street Floodwall Alignment.

The St. James to Market Street block became part of Faubourg Annunciation (Figure 3), when it was divided into lots by the City Surveyor Barthelemy Lafon under the instruction of Jacques Livaudais and Robin de Logny in 1807. The riverfront was donated to public use, and the foot of Market Street initially was designed as a market square. The land actually was acquired and developed by the noted New Orleanian Claude J. V. Dubreuil as a water powered sawmill in 1814. It later (1817-1827) became a rum distillery, established by Henry Clement. The batture along the St. James to Market Street block continued to expand, which increased the distance of businesses to the river, and made the loading of materials onto boats more difficult because the public lands remained undeveloped.

The heirs of Livaudais and de Logny petitioned the State Legislature to take over the riverfront area. This petition was granted in March of 1855, because the State claimed that the land no longer was needed by the public. The City of New Orleans put up its own claim to the land, and the case went on until after the Civil War (1867), when the City no longer had the funds to maintain the land. The riverfront property between Celeste and Race Streets was auctioned and the proceeds were allocated among the heirs. By 1876, this block was occupied by the Eagle Brewery and the stave yard used to build kegs or barrels (Figure 4). The Eagle Brewery was situated facing Tchoupitoulas Street, while Bobert Bros. (also listed as Bobet or Robert) maintained a stave yard facing St. Peters in the next block. As the batture along this block became more substantial, the area on the river side of St. Peters became the Bobert Bros. stave piling grounds, as well as the location of a small coal company (Figure 5). In 1891, Judah Hart of New York erected the Municipal Ice Company in the southeast corner of Market and Water Streets, in the square bounded by S. Peters, St. James, Water, and Market Streets. The Municipal Ice Company was bought out by the Crescent City Ice Company in 1899; it was out of operation by 1903. In 1905, the New Orleans Railways and Light Company bought the site. Presently, the area where the ice house once stood is shared by the New Orleans Public Service Power Station and the railroad tracks that run along the riverfront.

Shippers' Cotton Press was located in Faubourg Saulet, in the downriver squares adjacent to Robin Street (Figures 6 and 7). A second yard was established within a newly sectioned city block on batture land which continued to form after 1876. The 1885 Sanborn Fire Insurance map shows tracks in the areas fronting Robin Street (Figure 7). These tracks may have been operated by the Texas & Southern Pacific Railway Company (Reeves & Reeves 1983:144). Shippers' Yard 2 was leased by the Texas and Pacific Railway Company shortly

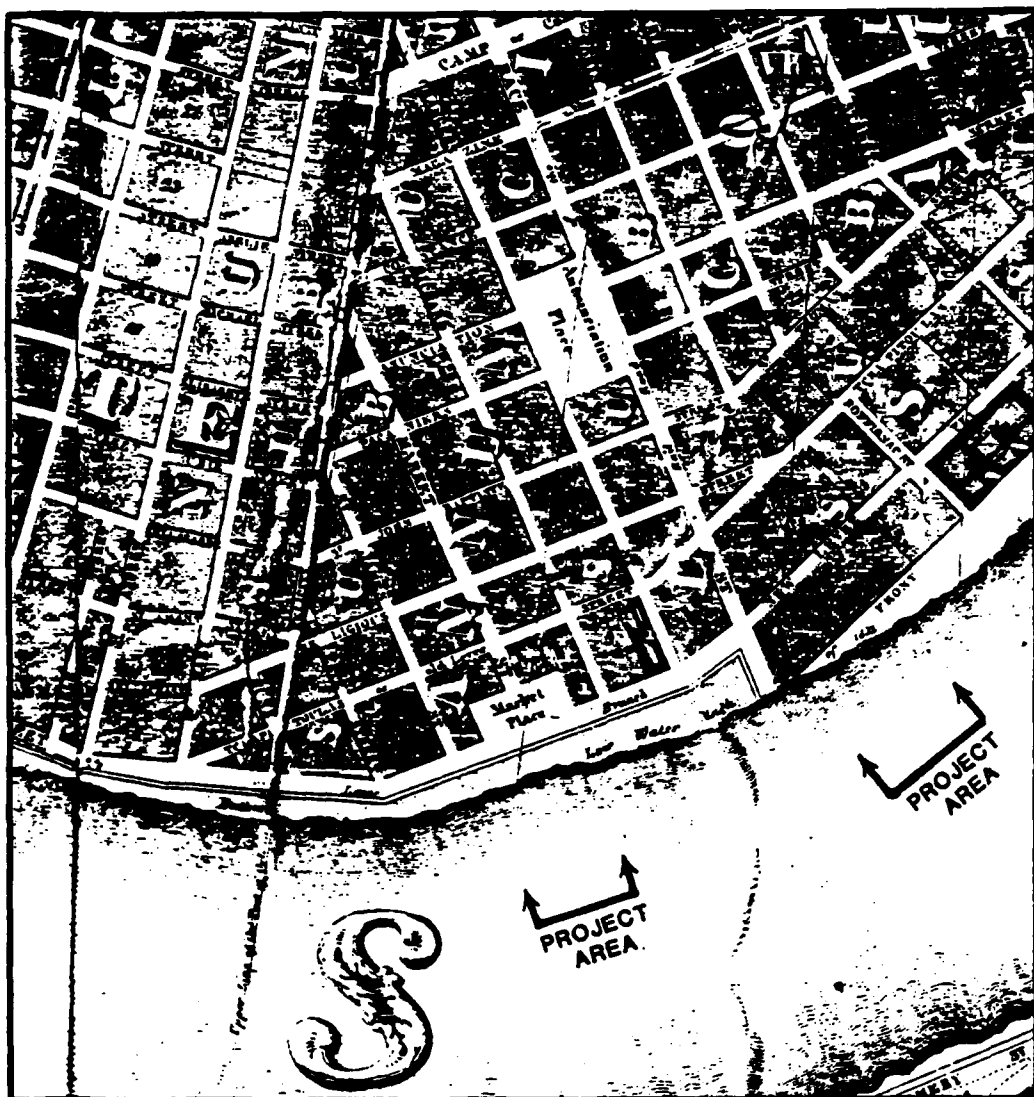


Figure 3. Excerpt from Zimpel's Topographic Map of New Orleans and its Vicinity (1834), showing the former location of plantations and standing structures in the vicinity of the Project Area.

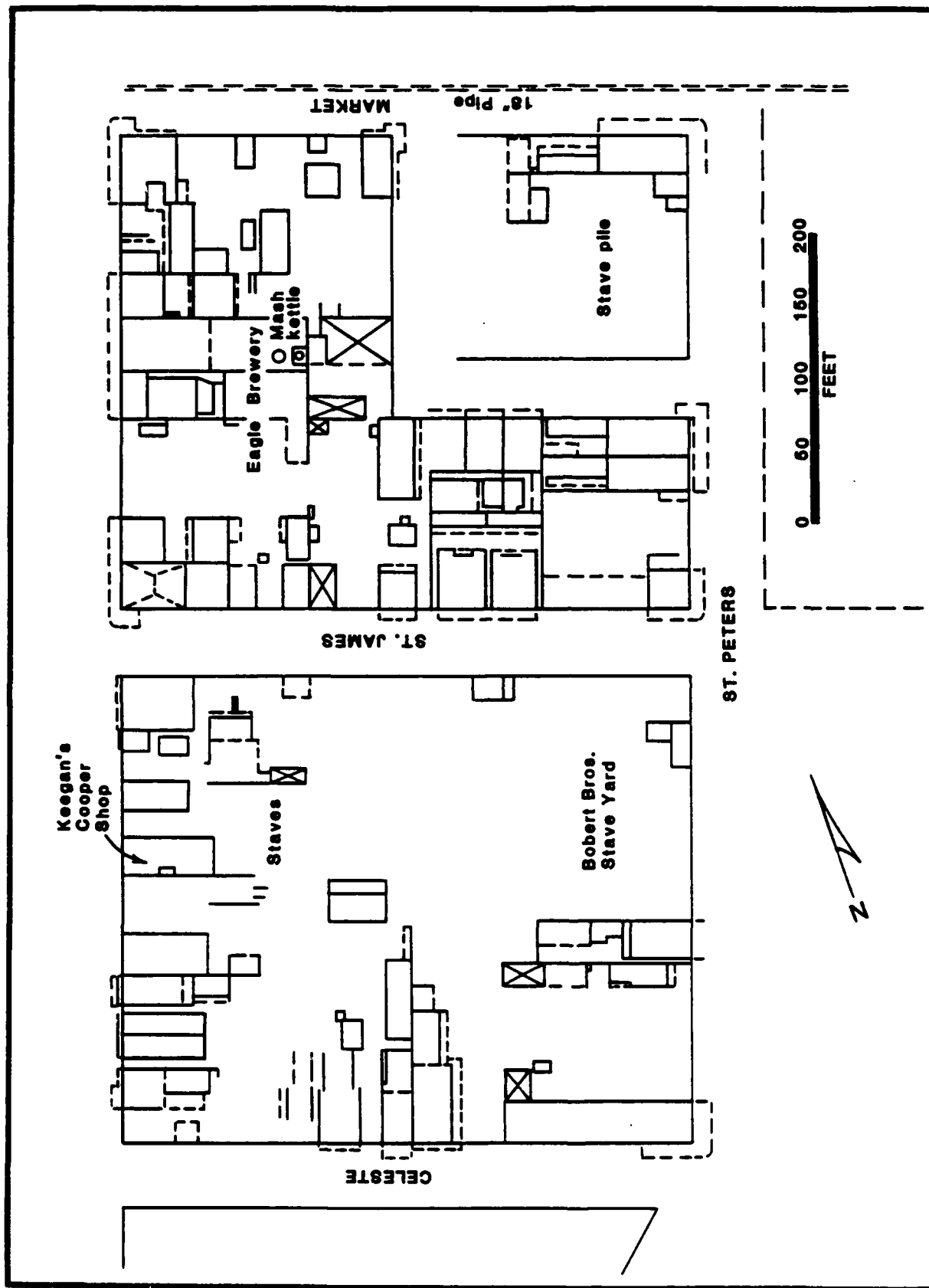


Figure 4. Redrawn Sanborn Fire Insurance Map of 1876, showing property divisions between Celeste and Market Streets.

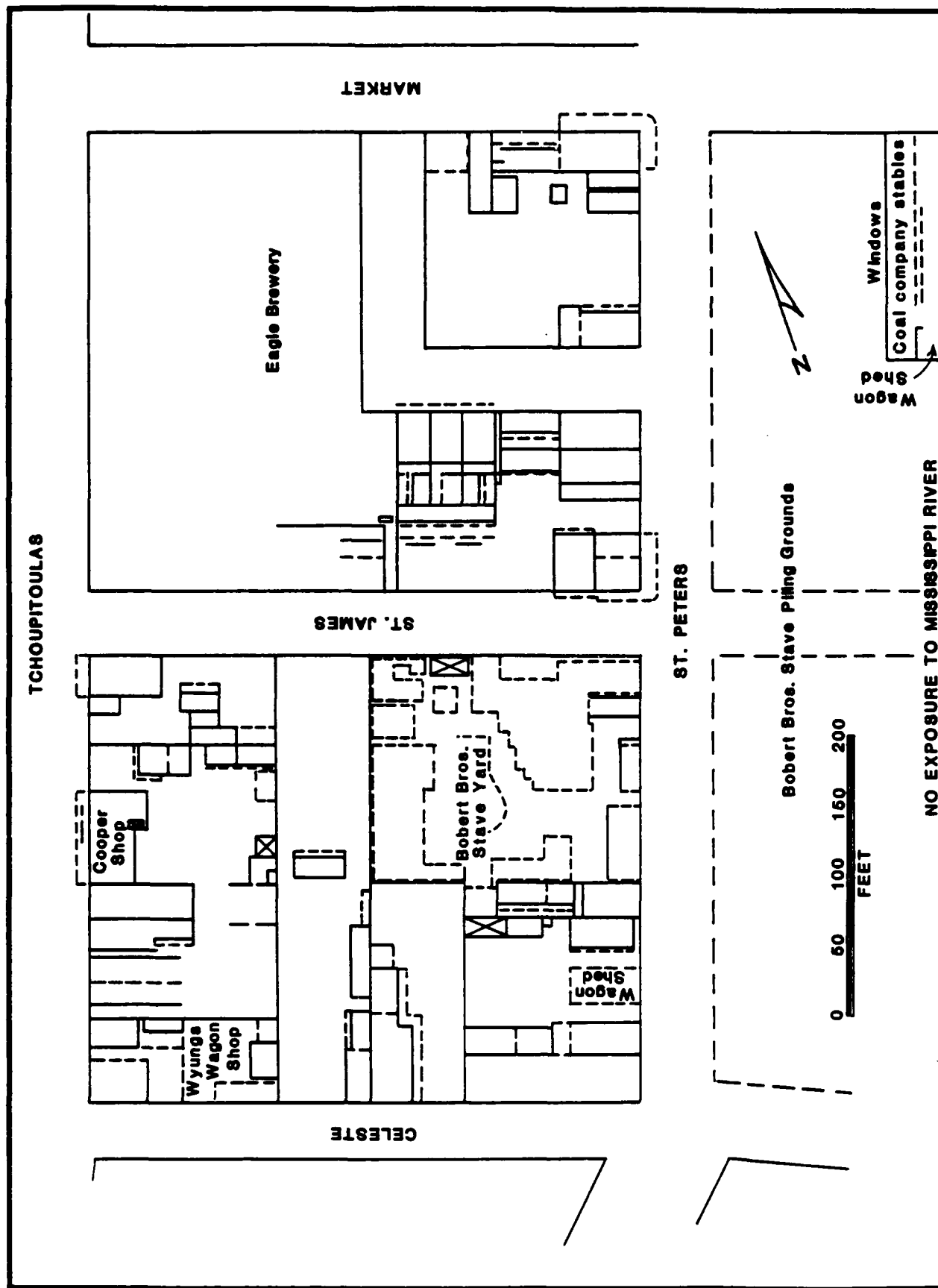


Figure 5. Redrawn Sanborn Fire Insurance Map of 1885, showing standing structures formerly located between Celeste and Market Streets.

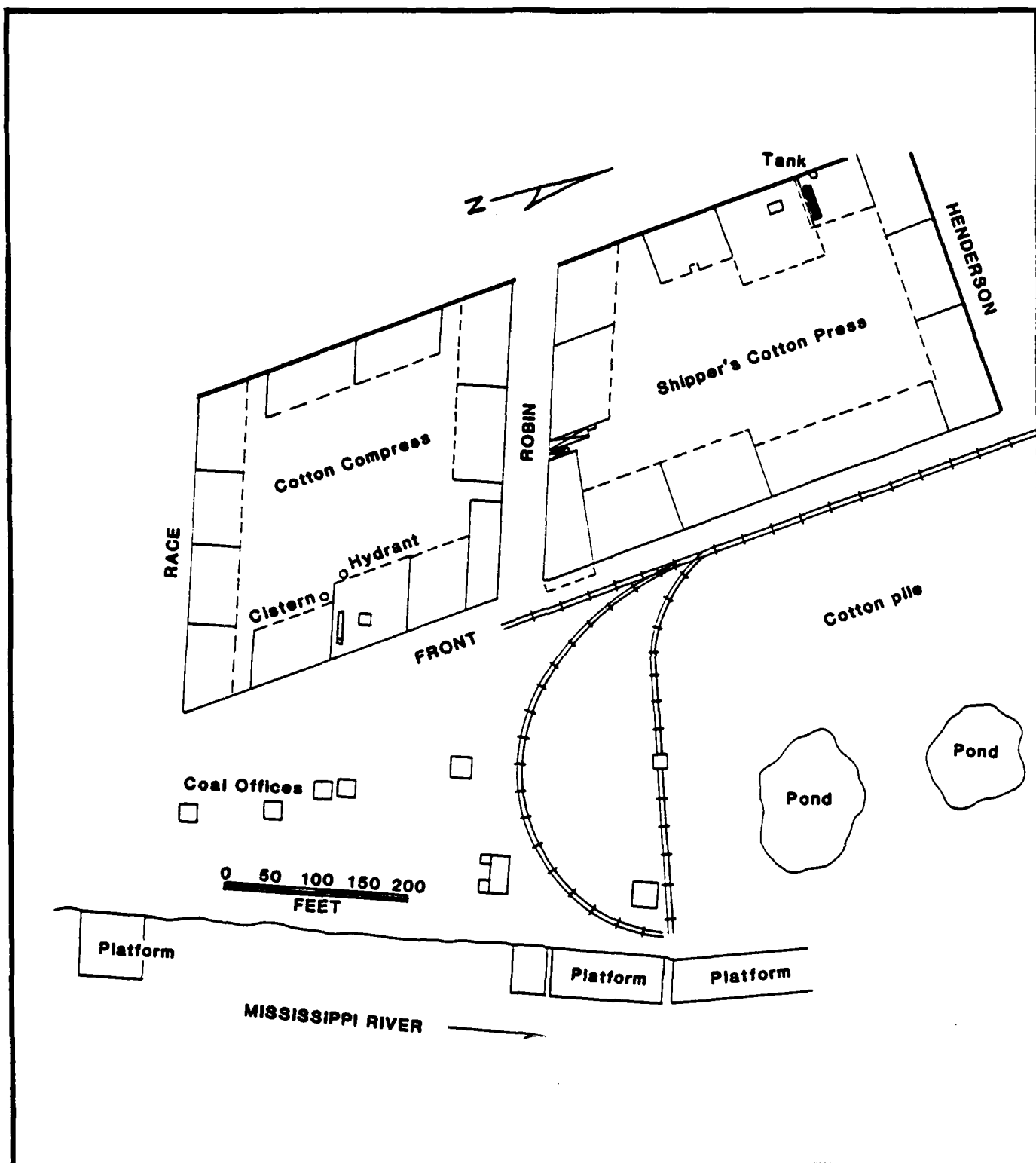


Figure 6. Redrawn Sanborn Fire Insurance Map of 1876, showing property divisions between Race and Henderson Streets.

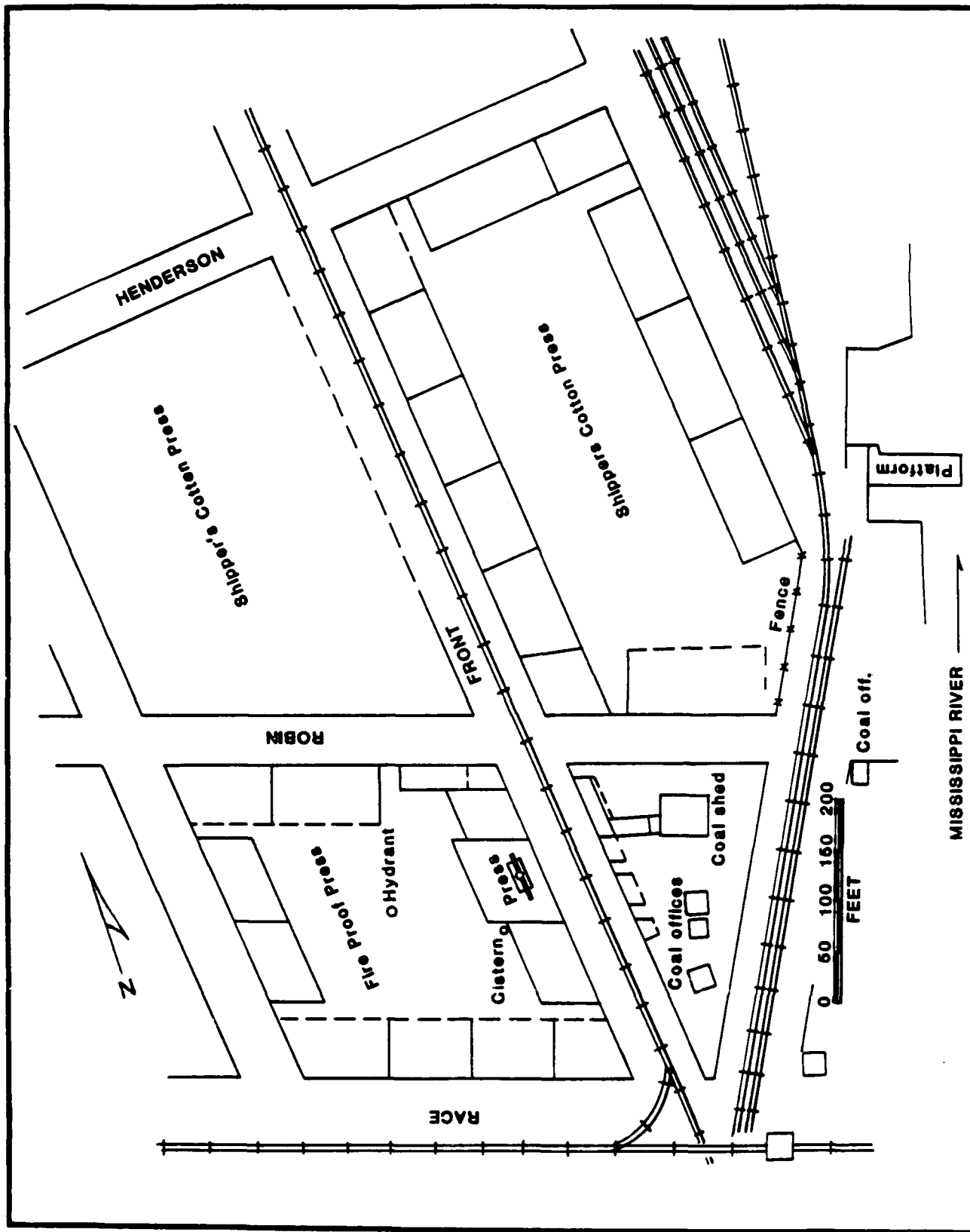


Figure 7. Redrawn Sanborn Fire Insurance Map of 1885, showing standing structures formerly located between Race and Henderson Streets.

after 1885. A spur of these tracks also served the New Orleans Gas Company coal yards, which were located just upriver from Race Street. Documentary evidence indicates that a nuisance wharf at Robin Street already was established by the time the Sanborn map was drafted.

Framework for Establishing the Chronology at the Nuisance Wharf

In 1832, a cholera epidemic carried off one-sixth of the city's population (Waring & Cable 1887). This and other outbreaks of disease were due in large part to unsanitary conditions. Reports of the Sanitary Commission identified nuisances within the city, and correlated them with high mortality rates. Interestingly, the 1854 Sanitation Commission Report on conditions in the city identified the riverfront from Race to Clouet Streets as a public nuisance (Sanitary Commission 1854).

The turnover of city-run docks to private enterprises displays a pattern within municipal government that was much broader in scope. When other major cities in the United States were finding ways to cope with the problems associated with increased urbanization, New Orleans was lagging behind (Magill 1972:1). The Civil War and Reconstruction had a tremendous economic, social, and political impact on the City. The Civil War left the city with a staggering debt. Much of the money that might have been used for necessary improvements went instead to servicing this debt (Magill 1972; Jackson 1969). Lack of funds made it necessary for the city to contract out many of its municipal services.

The sanitation problems of the previous periods continued into the Postbellum period. Political graft during Reconstruction did little to improve the city's garbage and sewage problems. Carpetbagger regimes siphoned money for municipal improvements into their own coffers. Jewell's Digest of City Ordinances (Jewell 1887) indicates that tremendous efforts were being made by the city council to enact ordinances controlling the dumping and disposal of waste products.

The removal of Federal troops from Louisiana in 1877 brought about changes in politics, but corruption and favoritism in contracting municipal services persisted (Jackson 1969). Appeals to the state for aid in alleviating the city's financial deficit met with little sympathy from a legislature whose constituency was predominantly rural (Magill 1978:12).

During this period, New Orleans was stigmatized as a

filthy and disease-ridden city. No municipal sanitation system had been developed; the common method for disposing of garbage was to empty it into the streets, onto empty lots, or, at best, onto the banks of the Mississippi River. The mortality rate in New Orleans was higher than in most other U.S. cities in the nineteenth century (Billings 1885 from Magill 1972:108). Cholera, yellow fever, typhoid, malaria, smallpox, and diphtheria all were endemic and epidemic in the area. Major outbreaks of yellow fever occurred in 1853, 1878, 1897, and 1899 (Jackson 1969:153).

Part of New Orleans' public health problem was caused by climate and topography (Magill 1972; Jackson 1969; Waring & Cable 1887). The highest elevation in the city was the Mississippi River levee. As the city grew away from the banks of the Mississippi River, it required increasingly sophisticated measures to contend with near sea level elevations and a high water table. A polder system of drainage was in existence and pumping stations moved water over the Metairie ridge into Lake Pontchartrain, but these were effective only in draining surface runoff.

The gutters, canals, and streets of the city were the receptacles for nearly all of the liquid waste, garbage, and rubbish from households and manufacturers (Waring & Cable 1887). Although privies were in use, at times they would overflow onto the ground; few were efficient in preventing seepage into groundwater.

Operation of the Nuisance Wharf

The regular cycle of epidemics and floods in the city resulted in recurrent cries from the citizenry for better living conditions. Even heavy rains would render many streets impassable, hindering the movement of offal carts. Though the public outcry weakened as soon as the threats had passed, there was sufficient pressure remaining to force major improvements. A variety of volunteer groups, city appointed commissions, and appointed officials were responsible for improving the poor conditions within the city; those most important for alleviating the problems related to poor sanitation are discussed below.

Leovy's compilation The Laws and General Ordinances of the City of New Orleans suggests that, between the consolidation of municipalities (1852) and 1866, general ordinances controlling garbage and sewage disposal were few and somewhat vague in comparison with those written in subsequent years (Leovy 1866). Tansey (1981) documented one method that street commissioners used to control the population of stray dogs during the 1850s. After the animals

were poisoned, their carcasses were dumped in the city's canals and lots as fill, and on the shore of the Mississippi River. "Usually, this official had a free hand in disposing of the city's wastes" (Tansey 1981:89).

Initially, the City Surveyor was responsible for designating refuse disposal areas and controlling the venues for proper disposal:

As New Orleans expanded during the Antebellum period (1830-1860), the Surveyor was not only the City architect, engineer and public safety officer, but functioned as a local health inspector, city planner..." (Reeves & Reeves 1983).

The position of the City Surveyor was organized during the American Regime as an ancillary to the French Colonial surveyors (Reeves & Reeves 1983; Goodwin et al. 1985). From 1818-1838, Gille Joseph Pilie' served as City Surveyor. Pilie' designed and drew a series of revetments and wharf plans that would improve port facilities. Nuisance wharves were included in these designs (Reeves & Reeves 1983:113; Poplin & Goodwin 1987:21).

Under the City Surveyor, the Department of Improvements was responsible for the construction of roads, bridges, wharves, etc. John Fitzpatrick was appointed the head of this department in 1880. Fitzpatrick was relentless in his campaign for improved conditions (Magill 1972; Jackson 1969). Although the Board of Health handed out the permits allowing privies to be emptied and cleaned, the Department of Improvements supervised garbage and sewerage disposal. Like many other city services, garbage disposal was handled by private companies under contract with this department. "Vidangeurs," a French word meaning "scavengers," were responsible for cleaning, fumigating, and carting away the nightsoil from privies, vats, and night closets. The removal of excrement had to be done in sealed barrels during specified times of the day (Flynn 1896).

The Department of Improvements also was responsible for contracting and supervising operations at the Nuisance Wharves. The Contractor was to have two men at the wharf to help load and unload barrels into the garbage boats. The contractor supplied the tug that hauled the boats to a point downriver as designated by the Administrator of the Department of improvements (Jewell 1887). The boats would be emptied in mid-river, and returned to the wharves. Letterbooks of the Department of Improvements indicate that the city did own the garbage boats, and that some boats were

built and donated to the city by the New Orleans Auxiliary Sanitary Association. The city was responsible for normal wear and tear on the boat, but the contractor was responsible for any negligence on his part. Letterbooks of the Department of Improvements contain correspondence from the Department to Mr. Robert Forrester, who was one of the contractors, concerning one such incident:

The tug Laura Lee operated by you in the tow boat contract. _____ and damaged the Robin St. Garbage boat between the hours of 6 & 7 O'clock Friday Morning opposite the [Old] Barracks. The Garbage boat while in tow by you must be accom_____ for by you; and you are hereby notified to make at once the necessary repairs and put the boat in its original good condition; otherwise the city will do the work at your expense. Geo Flynn (Letterbooks of Improvements Department March 7, 1883).

This letter addressed to Mr. Forrester on July 29, 1885, says:

Again, I am compelled to call your attention to the fact that the way you manage your contract is cause of serious complaint. On _____ July 25 you towed [down] the two boats. Coming back you towed up the Toledano Street boat to the Robin Street wharf about 5 O'clock and then you went off got the boat at 7 O'clock and towed her to Toledano street wharf.

Again on the 25 & 27 you failed to take down the Robin street boat but you towed her down in the morning of the 28 at 6 O'clock at a time when she should be at her wharf to receive garbage.

This is contrary to your instructions from this office. I have told you most positively that you must tow these boats down in the evening after 2.30 O'clock.

Neglect appears to me to be willful on your part and I notify you now that I shall adhere to the specifications and a strict compliance to the contract. I beg also to notify you that the chain on the Toledano street boat is broken and your attention is called to same and the necessity of _____ same at once.

The Toledano boat has not been emptied since Tuesday--three clear days having elapsed since she was dumped up to date.

I trust you will give these matters your special attention as its my intention to enforce the strict letter of the contract: Resp. John Fitzpatrick. (Letterbooks of Improvements Department July 29,1885)

The term of contract was usually for one year, but consecutive terms frequently were awarded prior to the 1870s. Surveyors' ordinances specified the terms of contracts for towing the barges. Specifications for the construction of nuisance wharf boats were drafted on June 3, 1869. These were to be delivered to their respective Districts upon completion.

Like other wharves, nuisance wharves needed to be rebuilt periodically. Damage caused by barges and tow boats, fire, and by normal decay affected the wharves; silting around the piers required that the wharves be extended. Although the Surveyor's office continued to design the nuisance wharves, the Department of Improvements was responsible for determining their location and for contracting their construction. It is apparent from contract specifications that different kinds of wharves were constructed. While the wharves located at Barracks and Toledano Streets were designed and constructed as floating wharves, the Robin Street wharf was constructed as a T wharf.

The State Board of Health was concerned chiefly with public health within the city. By introducing and maintaining fumigation procedures, and by passing ordinances aimed at preventing the recurrence of the devastating epidemics that crippled commerce, the Board was responsible for the detection and reduction of contagious diseases which frequently attacked the city. Many of the Board's measures met resistance, particularly from those businesses which depended on the shipping industry. The establishment of a quarantine station along the river showed that the city was taking things more seriously (Jackson 1969:175).

The New Orleans Auxiliary Sanitary Association, formed on March 31, 1879, "... was founded by a group of businessmen who felt the health of the city was tied up with its commercial prosperity (Jackson 1969:172)". The yellow fever epidemic of 1878 was partly responsible for the formation of this association. Recognizing the deplorable condition of privies and vaults, the unsanitary practice of emptying

chamber pots in the streets, and the necessity of vaccinations and enforceable public sanitation ordinances, the New Orleans Auxiliary Sanitary Association worked closely with the Department of Public Works and the Louisiana Board of Health. A.S. 6442 Art. 1288-1298 of the city gave the Association the right to operate a pump and siphon between Celeste and Nuns Streets at the Mississippi River (Flynn 1896:534-536). This facility and others like it were used to flush out gutters perpendicular to the river, and to supply water to city hydrants. The New Orleans Auxiliary Sanitary Association became responsible for the efficient organization of the garbage boats in 1880 (Waring & Cable 1887:77).

In 1892, Mayor Fitzpatrick called for a new method of garbage disposal (Jackson 1969:160). In 1893, a contract was awarded for construction of a combination incinerator and fertilizer plant (Jackson 1969:160). Amid council scandal, and Mayor Fitzpatrick's impeachment, the contractor let garbage pile up in the city, insisting that it was not being put out properly. It was under the administration of Walter C. Flower that the ordinance restricting the types of garbage that would be collected by the incinerator company was repealed. However, this did not prevent the practice of disposing of garbage on neutral grounds near the incinerator plant.

In 1892, Ordinance No. 6142, C.S. Art. 2671 directed the mayor to enter into a contract with A. A. Woods and his associates for the establishment of a sewerage system in the city (Flynn 1896:1001). This agreement, and subsequent agreements made with different companies, were dissolved when the contractors were unable to provide the services that the city required. Despite this, New Orleans had a partial sewerage system in place shortly after the turn of the century:

The construction of sewers started in 1903, in 1906 the pumping stations were ready for operation, and the sewers had progressed far enough to begin to make use of them in the most thickly settled portions of the city (Behrman 1914:97).

The establishment of modern sanitary procedures, sewers, drainage, and efficient methods for removing garbage signaled the end of nuisance wharves within the city. The major factors in instituting these changes were the city's newly-regained solvency, the perseverance of volunteer associations aimed at improving their own living conditions, technological innovations that made these improvements affordable, and the

overall change in attitude of New Orleans' citizens.

Construction and Location of the Robin Street Nuisance Wharf

Specifications for the construction of a nuisance wharf at Robin Street are found in the Surveyor's ordinances dating from 1877. The details of the contract state:

The nuisance wharf at Robin street, shall measure from the levee out into the river, 110 feet long by 20 feet wide besides a "T" head of 40 feet by 40 feet. Of the 110 feet, 50 feet in length by 20 feet in width shall be filled up with river sand taken from the batture on each side, and to support said filling and prevent it from washing out with the old planks coming from the demolition, bulkheads shall be built on each side and at the end of said filling out shall be of wood.

The new wharves (wharf) shall be constructed according to the lines and heights to be given by the City Surveyor. The piles shall be of lake or river timber of the best quality not less than 11 by 11 inches square at one end and 9 by 9 inches square at the other end, and shall be driven from 15 to 20 ft into the solid ground, at distances of 10 feet from centres. The head of the piles shall be square according to the heights to be given by the City Surveyor, and shall receive and support 11 by 11 inches square caps, which shall be strongly fastened to each of said piles, with drag nails one inch square by 18 inches long. The angles upon the caps, at distances of five feet from centres and shall be strongly fastened at each intersection with a cap with drag nails on each square by 16 inches long. The planks of the flooring shall be of yellow pine of the best quality; 12 inches wide by 3 inches thick and not less than 15 feet long. They shall be strongly nailed to each of the sleepers with 7 inch pressed spikes; two at each end of each plank, and one at the intersections with each of the sleepers. The sleepers and flooring shall project six feet outside of the last row of piles into the river and at the ends of said sleepers

there shall be placed a fender cap of 15 inches square, which, shall project 12 inches above the flooring of the wharf and shall be strongly fastened to each sleeper with screw bolts one and a half inch in diameter. Two mooring piles 12 inches square shall be driven where the Surveyor shall direct and shall be strongly fastened to the piles and caps of the wharf each with at least two screw bolts of one and a half inch in diameter. A substantial wooden railing shall be constructed all around said wharf (___ front excepted) which shall be four feet in height. The whole as per directions to be furnished by the City Surveyor. (Specifications Books of the Surveyor's Office 1869-1873)

Historic maps of the city also were useful in documenting the nuisance wharf at Robin Street. Hirt's map of 1841 (Figure 8) plotted the location of various wharves in the city, assigned numbers to the wharves, and indicated where various types of vessels were to dock (Figure 9). The numbering system stopped at wharf 23, the wharf immediately downriver from the Robin Street wharf. This map is one of the earliest maps to document the existence of a wharf at the foot of Robin Street. A map drawn by the city surveyor ca. 1877 shows that wharf 23 was gone by that time (Figure 9). The numbering system for wharves was continued on the city surveyors map; however, numbers 24 and 25 do not correspond to extant wharves. The Robin Street wharf was not numbered in this map, but it is clearly marked as a nuisance wharf.

Robinson's map (Figure 10) indicates that wharf number 24, the nuisance wharf, continued to exist in 1883. Wharf 23 had been rebuilt by this time; it probably served Shippers' Cotton Press. Sanborn's map of 1895 (Figure 11) indicates one wharf at the foot of Robin Street, and the presence of a structure on its platform. This may have served as a coal office at the foot of Robin Street that facilitated the unloading of coal at the wharf there; however, it seems more likely that the coal was brought in by rail and that the structure indicated on the map may have been the watchman's office for the nuisance wharf.

The pattern of throwing garbage into the river and on its shores developed early in the history of New Orleans. Nuisance wharves were documented as early as 1819, although they may have existed earlier as multifunctional wharves. These wharves were common during the nineteenth century; as noted above, the city maintained specifications for their

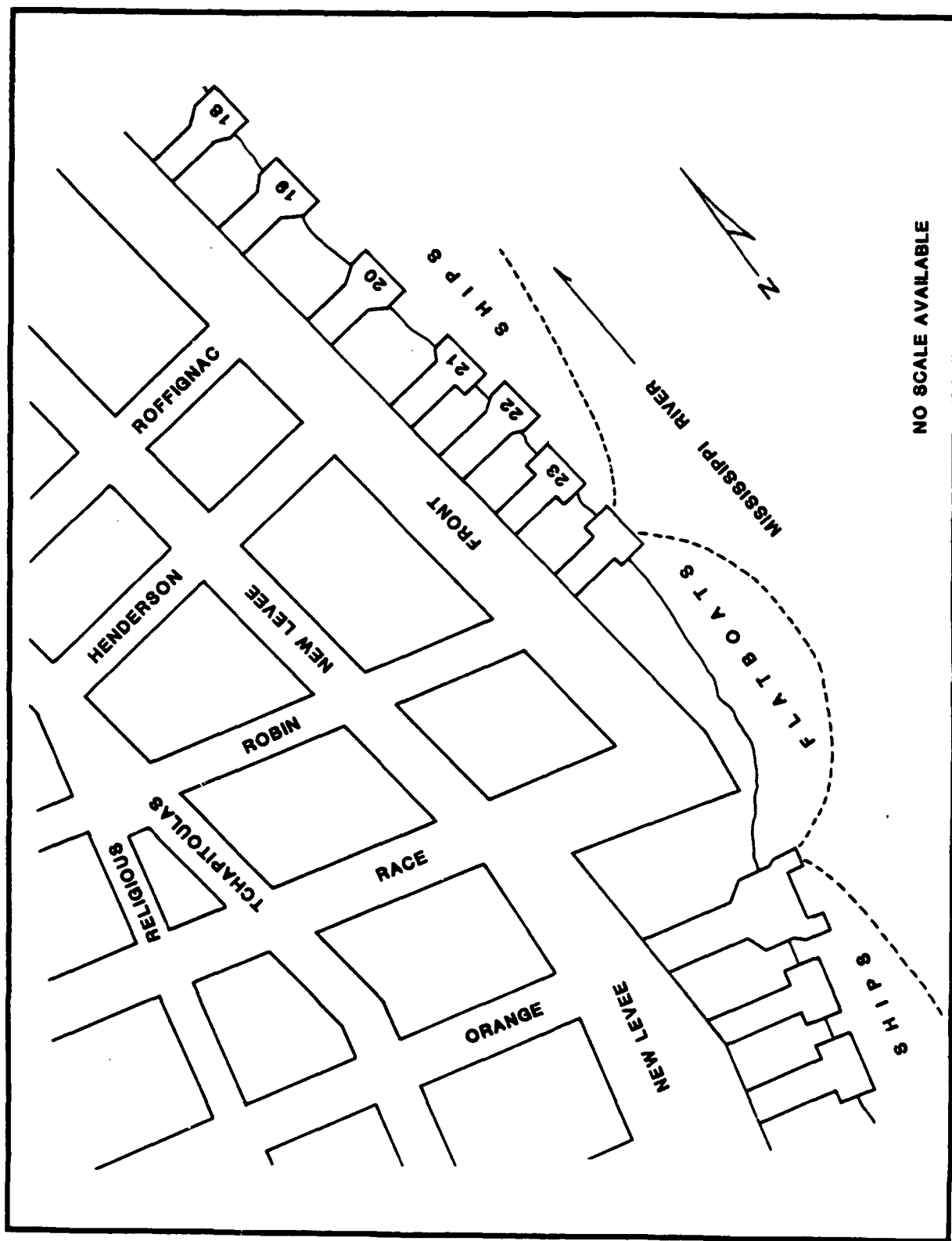


Figure 8. Redrawn Hirt Map of 1841, showing wharves in the block between Henderson and Robin Streets.

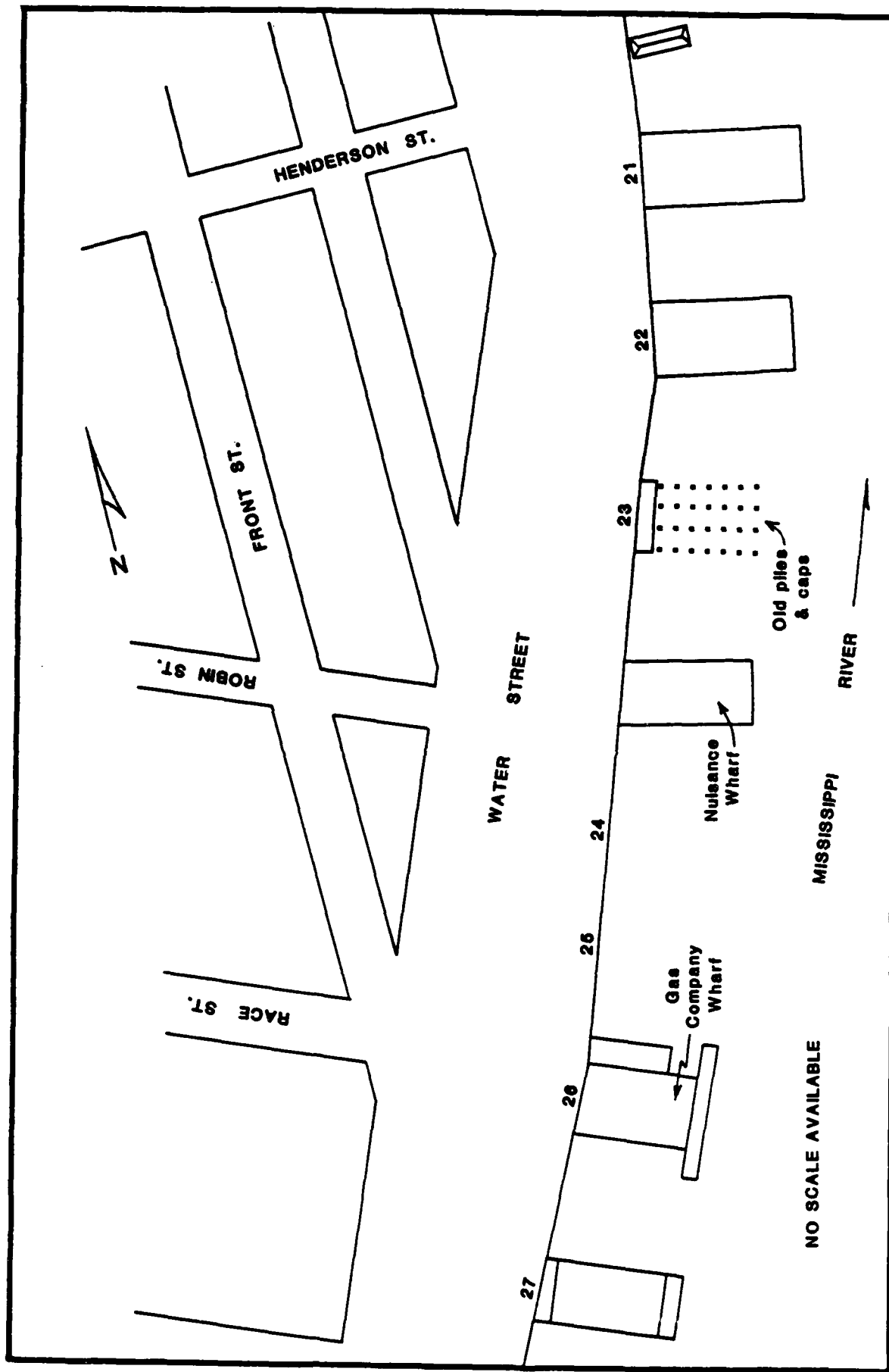


Figure 9. Redrawn Map from the Land Surveyors Sketch Book ca. 1877, showing the Robin Street Nuisance Wharf.

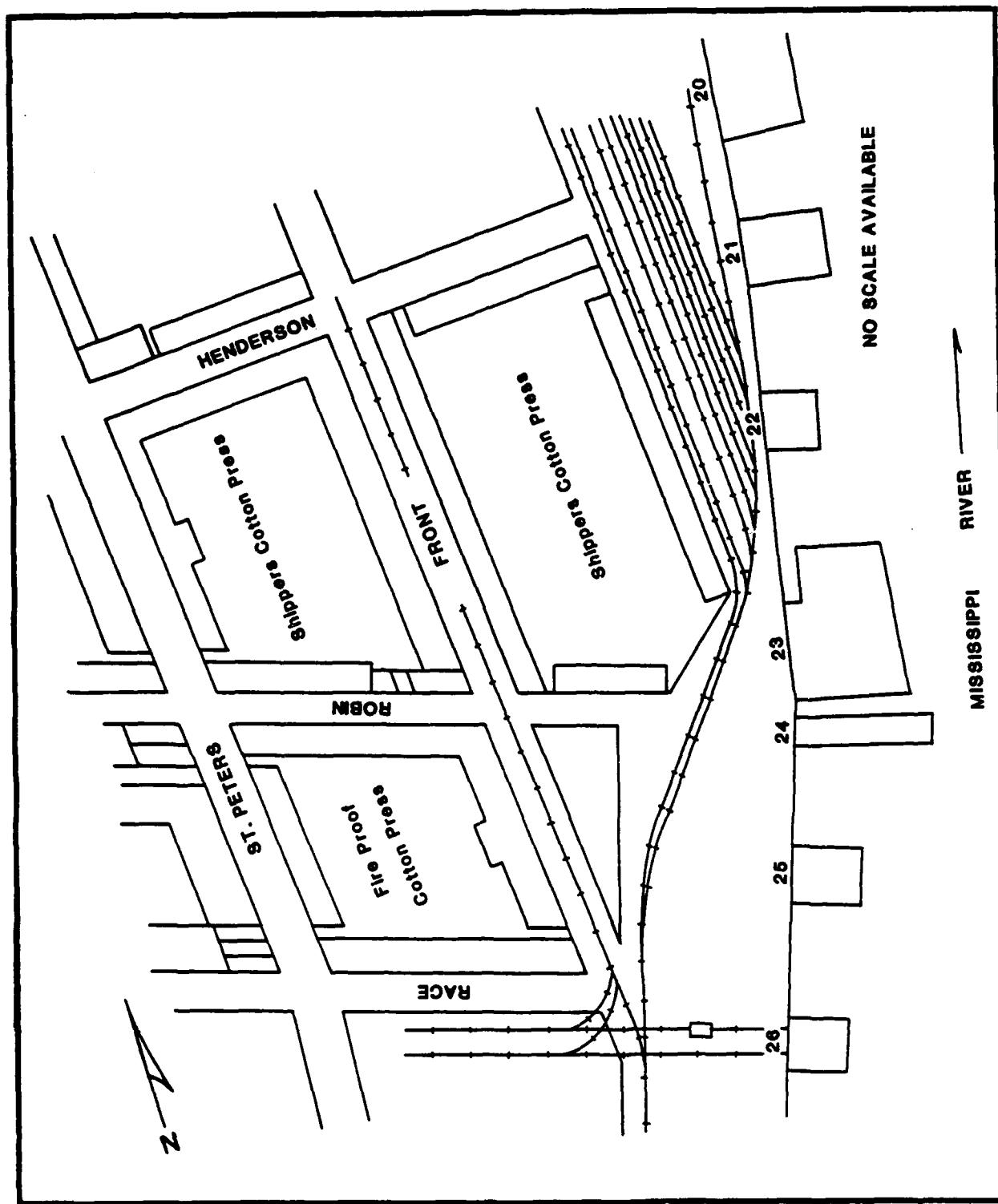


Figure 10. Redrawn Robinson Map of 1883, showing the wharves and their numbers in the vicinity of Robin Street.

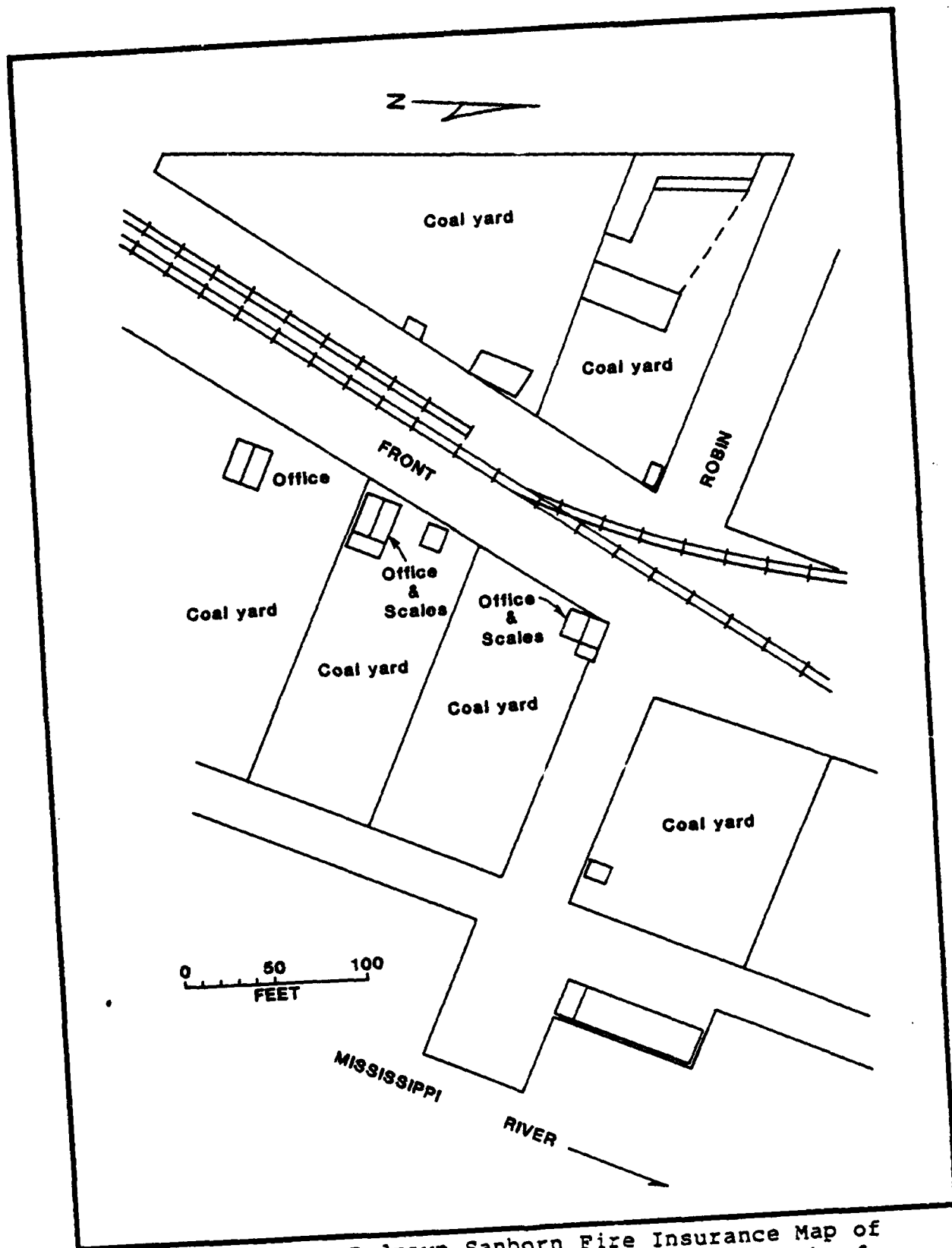


Figure 11. Redrawn Sanborn Fire Insurance Map of 1895, showing the Robin Street Wharf and former structures at the foot of Robin Street.

construction. By the 1870s, there was a growing demand for better sanitary conditions within the city. Volunteer organizations such as the New Orleans Auxiliary Sanitary Association were formed. Wharves were used until the renewed solvency of the city made it possible to finance the necessary improvements; when sewerage systems began operating in the city after 1906, nuisance wharves were no longer necessary.

CHAPTER IV

THE RESEARCH DESIGN

As noted above, the project described in this report was based upon a research design and data recovery plan formulated in an Archeological Monitoring Plan for Four Floodwall Projects in the City of New Orleans (Goodwin et al. 1985). The first stage of this research effort involved the inventory and classification of all documented historic properties located along the floodwall alignments. Primary written source material, historic maps (Sanborn Fire Insurance Maps for 1876, 1895, and 1896; Braun Fire Insurance Map for 1877), and a previous report prepared for the New Orleans District, U.S. Army Corps of Engineers (Reeves and Reeves 1983), were used to provide locational information on historic structures. These data then were applied in the construction of a typology of historic structures located along the impact corridor. Five major classes of structures were identified during the inventory: residential, commercial, industrial, public, and military.

Subsequently, a formal set of significance criteria was developed for the various classes of buried cultural resources that may be impacted by the planned floodwall construction. These criteria were applied in an evaluation of significance for individual properties within the project corridor. This probative evaluation of significance was based upon three primary factors: (1) the relationship of the relevant structures to the growth and development of New Orleans as a major port; (2) their relationship to technological and demographic change; and, (3) the hypothetical characteristics and probable condition of surviving assemblages, including, for example, the uniqueness and integrity of the remains. A number of potentially significant historic structures along the riverfront, such as shipping wharves, docks, warehouses, cotton mills, distilleries, canneries, sawmills, foundries, and ice factories, were identified during this phase of research. Historically important structures, such as Fort St. Charles, were considered significant at this stage of the research (Goodwin et al. 1985).

Using the above inventory and classification of historic structures, the potential National Register eligibility of individual properties located along the three floodwall alignments was assessed. The objective of this effort was the delineation of historic properties that might contain archeological or architectural components with the potential for National Register eligibility. Specific criteria for National Register eligibility that are applicable to the

riverfront structures in question include association with events that have made a significant contribution to the broad patterns of local and regional history [36 CFR 60.4(a)], and/or association with the lives of persons significant to the history of New Orleans [36 CFR 60.4(b)]. These structures also should have the potential to yield historically important information [36 CFR 60.4(d)]. In addition, such archeological or architectural sites must possess "integrity of location, design, setting, materials, workmanship, feeling, and association..." (36 CFR 60.4).

The next stage in the development of the research design entailed the identification of specific examples of the categories of previously identified potentially significant sites along the proposed floodwall alignments. These sites were selected for their potential to yield archeological remains and to contribute materially to knowledge of local history, thus fulfilling the fourth significance criterion [36 CFR 60.4(d)].

These preliminary determinations of potential significance, obtained from archival research, were utilized to develop recommendations for a block-by-block monitoring plan. Only those city blocks along the floodwall alignment with the potential to contain historically significant structures were selected for archeological monitoring under the original monitoring plan. Within the Jackson Avenue to Thalia Street alignment, the block between St. James and Market Streets was recommended for monitoring because it was the historic location of the Municipal Ice Manufacturing Co. Isolated wharf locations at the foot of Robin Street and at the foot of Thalia Street also were recommended for monitoring (Goodwin et al. 1985:99).

The original monitoring plan also anticipated the possibility of the unexpected discovery of archeologically significant remains in blocks not selected for monitoring. A set of guidelines was developed for the reporting of such archeological remains to appropriate supervisory personnel. These "must call" categories included the following types of archeological remains:

1. prehistoric remains (stone tools, aboriginal pottery, hearths, etc.);
2. human skeletal remains, or other remains indicating the presence of a cemetery or burial site;
3. historic ships, or the remains of shipwrecks and sunken or abandoned vessels;

4. historic military equipment or fortifications; and,
5. definable refuse concentrations, such as filled privy pits and wells.

Construction crews were provided with a copy of the "must call" list; they were instructed to report any "must call" finds, as well as any unusual remains, to the monitoring archeologists, or to appropriate Corps of Engineers staff members, who then could evaluate the significance of in situ material. The intent of the research design and accompanying monitoring plan was to provide an explicit set of procedural guidelines for the efficient resolution of in-field discovery situations.

CHAPTER V

FIELD METHODS AND RESULTS

Archeological Field Methods

Documentary research using primary source material, historic maps, and reports of previous investigations of the waterfront area provided substantive information concerning historic land use within the Jackson Avenue to Thalia Street floodwall right-of-way (Goodwin et al. 1985; Goodwin et al. 1986; Reeves and Reeves 1983). Because of the number of historic components present in the riverfront area, it was necessary to determine in advance which structures and classes of remains might possess sufficient integrity or archeological context to confer research potential. From this information, potentially significant resources were identified for two localities. Monitoring of these localities: the Municipal Ice Manufacturing Company (circa 1891-1905), located in the downriver half of the St. James to Market Street block, and a nuisance wharf (circa 1870), located at the foot of Robin (Euterpe) Street. Information concerning the location of these structures was provided to the monitoring crew prior to fieldwork, to aid in the identification of features in the backhoe trench.

Archeological monitoring at the two localities along the Jackson Avenue to Thalia Street floodwall alignment was concurrent with the excavation of the general contractor's preconstruction inspection trench (Figure 12). The archeological monitoring crew remained in the field throughout excavation, in order to determine whether any significant or potentially significant cultural resources were located within the backhoe trench.

Problems Associated with the Trench

The pre-construction trench was excavated by the backhoe to a depth of approximately five feet (1.5 m) below surface. Obstacles or intact cultural deposits encountered at the five-foot depth required the construction contractor to dig below the required depth. In addition, ground water seeped into the trench. At extended depths (Figure 13), it was imprudent to enter the trench for recordation, or to draw profiles of the walls. The construction contractor also considered the trench walls extremely unstable and requested that the trench be backfilled as 20-foot intervals were excavated. This rapid redeposition of fill, combined with the ground water seepage, hindered archeological observations. Under these conditions, collection both of

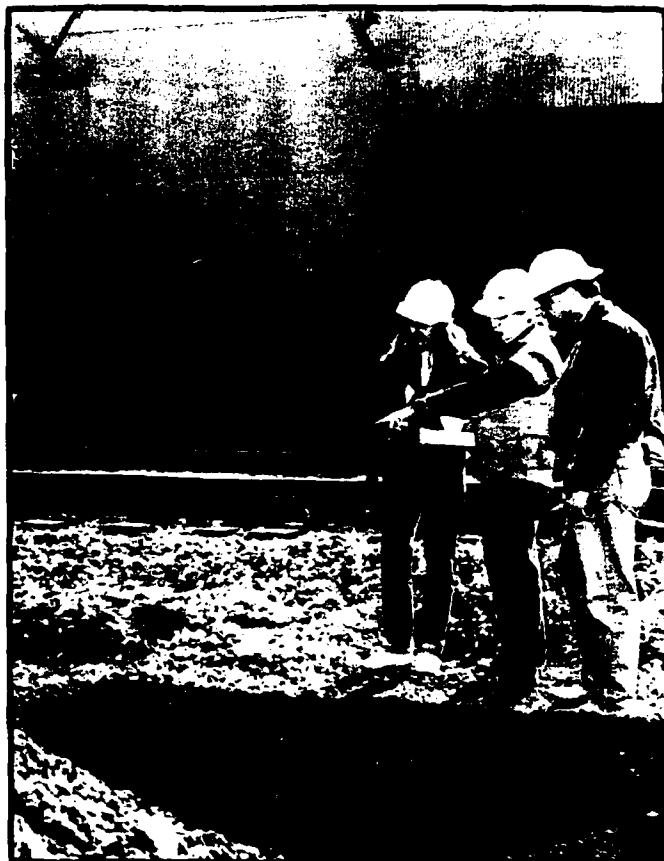


Figure 12. View of inspection crew monitoring St. James to Market Street trench.



Figure 13. View of inspection trench at 16 OR 116, showing water seepage and railroad ties in the profile.

artifactual remains and of descriptive stratigraphic details were limited primarily to backdirt examination.

Discussion of Inspection Trench Monitoring

Archeological monitoring of the segments of the Jackson Avenue to Thalia Street floodwall pre-construction inspection trench was designed to prevent the disturbance or destruction of archeologically significant remains. The field monitoring crew conducted a thorough visual reconnaissance of the inspection trench and of the backdirt, in order to identify archeological artifacts and features. Horizontal measurements in the field were recorded using wall line stations (baselines) established by the U.S. Army Corps of Engineers. Trench wall profiles were photographed at all locations, that exhibited a discernible change in stratigraphy or that evidenced in situ structural remains. Scaled profile drawings of the trenches also were prepared. The horizontal and vertical location of artifact concentrations and features were recorded, as were the natural and cultural stratigraphy. Archeological features and stratigraphic profiles also were photographed in situ with a 35 mm single lens reflex camera.

Artifact recovery from the St. James to Market Street trench included collection of all observed cultural remains except massive structural remains. During the monitoring of the Robin Street trench, vast numbers of artifacts were unearthed. Because of collapse hazards and for safety reasons, a limited amount of time was allowed for examination of the backdirt prior to its redeposition. Under these conditions, one hundred per cent recovery of unearthed materials was impossible; thus, material had to be recovered selectively. The criteria for the collection of ceramic and glass artifacts were based on completeness, size, and the diagnostic attributes of the artifact. Shoe remnants, food-related faunal remains, and small potentially diagnostic artifacts, all were collected.

Results of the Inspection Trench Monitoring

Introduction

Two sites were identified during monitoring. The first site, 16 OR 116, comprised the entire trench area excavated at the end of Robin Street. The second site, 16 OR 117, consisted of the remains of a massive wooden structure, possibly a wharf, located in the downriver end of the St. James Street to Market Street trench. Site forms for these two sites were submitted to the Louisiana Division of

Archaeology, which assigned site numbers in order of occurrence.

Description of Archeological Sites

16 OR 116. Based on previous archival research, it was anticipated that the remains of a nuisance wharf might be encountered at the foot of Robin (Euterpe) Street. Monitoring of this segment was conducted on October 13, 1987. Although no structural remains were encountered, artifacts were abundant. The site extended the entire length of the monitoring trench, between wall line station 46+00 and wall line station 47+50 (Figure 14). Examination of backdirt from the inspection trench dug upriver from station 46+00 indicates that the site may have extended upriver as far as wall line station 44+00. The area from wall line station 44+00 to wall line station 46+00 was not scheduled for monitoring under the present Scope of Services.

The remains were located in a stratum of dark gray brown (10YR 3/1) highly organic fill. Remains included ceramic and glass artifacts indicative of the period ca. 1850 to 1890 (Figure 15). In the basal portion of the midden deposit, a large concentration of cobbles was unearthed. These stones represent ship ballast; this concentration probably is indicative of the original wharf location. Above this midden stratum was a 70 cm deposit of Rangia shell fill. Directly below this midden stratum, between 140 and 270 cm below surface, sterile dark gray (2.5Y 4/0) batture sand was encountered.

At approximately 5 m upriver from wall line station 46+00, the backhoe encountered in situ an old railroad line with both rails and cross-ties. This line was discovered at approximately 130 cm below surface, directly above the gray batture sand deposit (Figure 12). The backhoe continued to expose this line until the end of the trench at wall line station 47+50. These remains were below the refuse deposit at the nuisance wharf site.

Additionally, two concrete footings were discovered at approximately 5 and 12 m upriver from wall line station 46+00. Since they appeared in the wall of the trench, no further excavation was required. These footings are of recent origin; they were not assigned archeological feature numbers.

Artifacts at 16 OR 116 included large numbers of mid- to late nineteenth century ceramic, glass, metal, and clothing remains. A number of whole and partial bottles were collected from this site, as were a number of partial

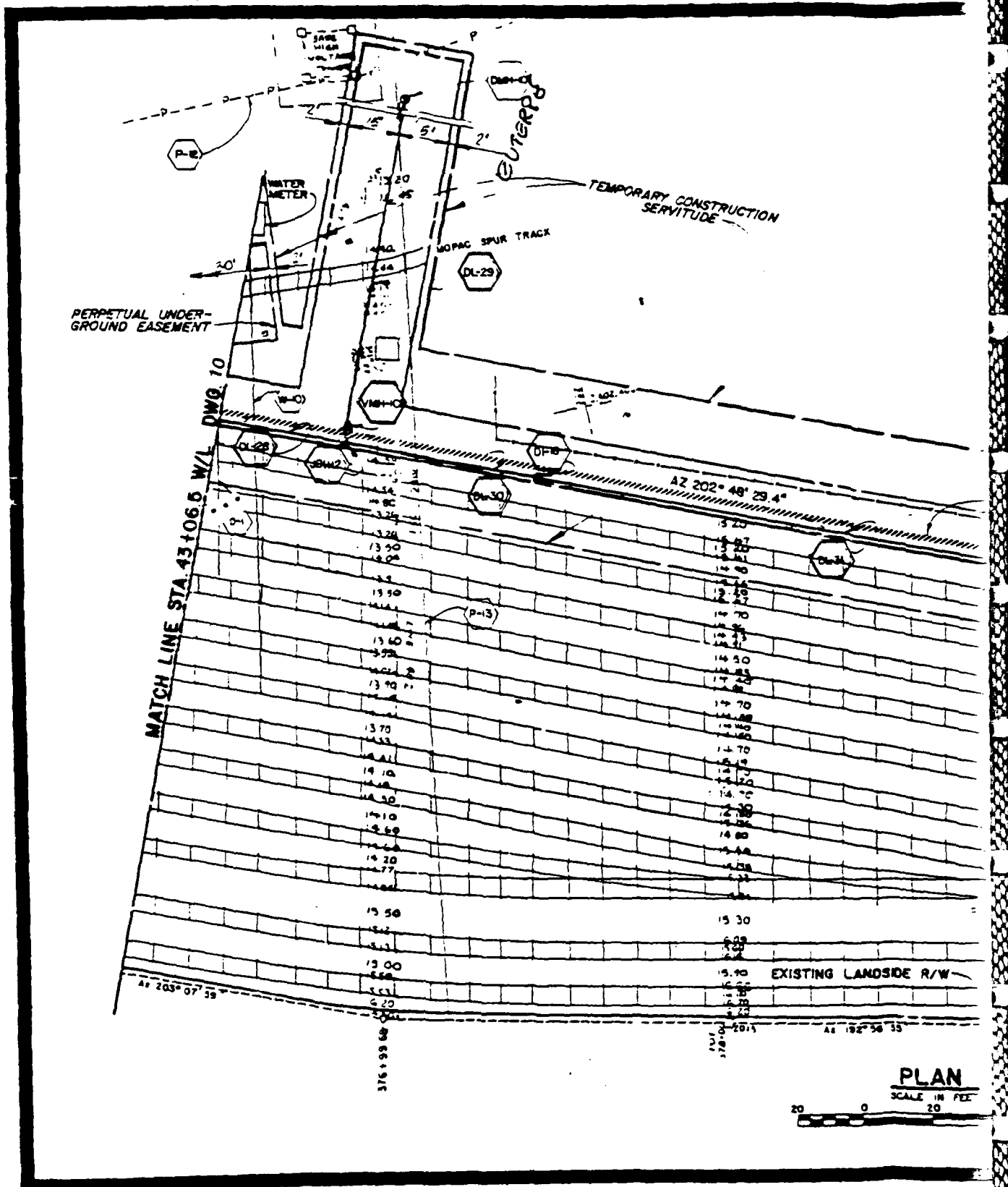
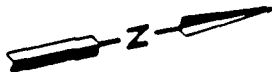


Figure 14. Plan of site 16 OR 116, the trench end of Robin (Euterpe) Street (sta. to 47+50).

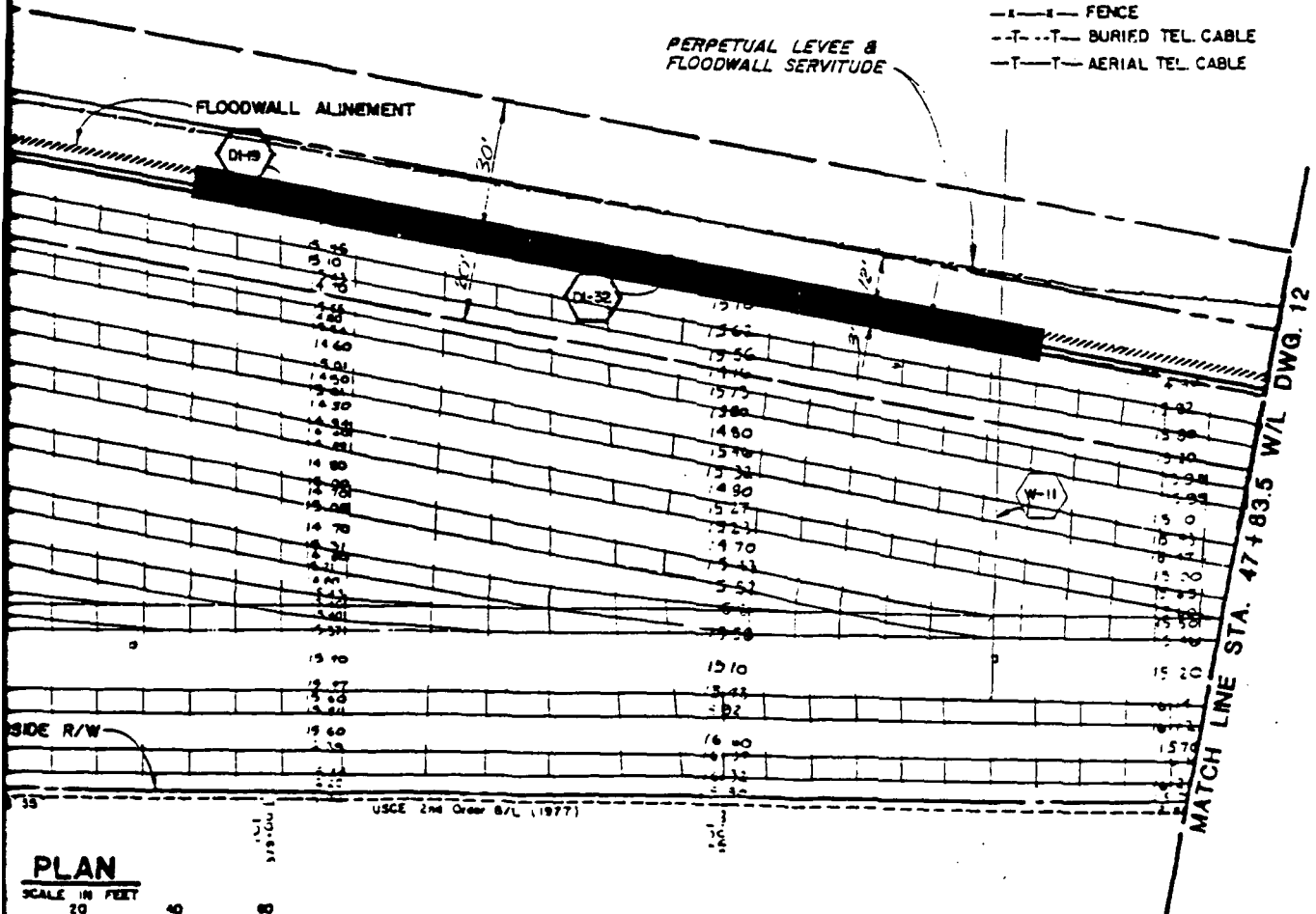
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16 OR 116 Trench 1



SYMBOL LEGEND

- ⊙ — D.M.H. DRAIN MANHOLE
- ⊙ — W.M.H. WATER MANHOLE
- ⊙ — M.H. MANHOLE
- ⊙ — S.S. STORM SEWER
- ⊙ — P.P. POWER POLE
- ⊙ — C.B. CATCH BASIN
- ⊙ — L.P. LIGHT POLES
- ⊙ — R.R.SW. RAILROAD SWITCH
- ⊙ — P.M. PARKING METERS
- ⊙ — N.C.B. NEW CATCH BASIN
- ⊙ — N.V.M. NEW VALVE MANHOLE
- ⊙ — UTILITY IDENTIFICATION
- ⊙ — UNDISTURBED TYPE BORING
- ⊙ — GENERAL TYPE BORING
- //// NEW FLOODWALL
- W--W-- WATERLINE
- S--S-- SEWERLINE
- P--P-- POWER LINE
- F--F-- FENCE
- T--T-- BURIED TEL. CABLE
- T--T-- AERIAL TEL. CABLE



SITE 16 OR 116
Station 47+50

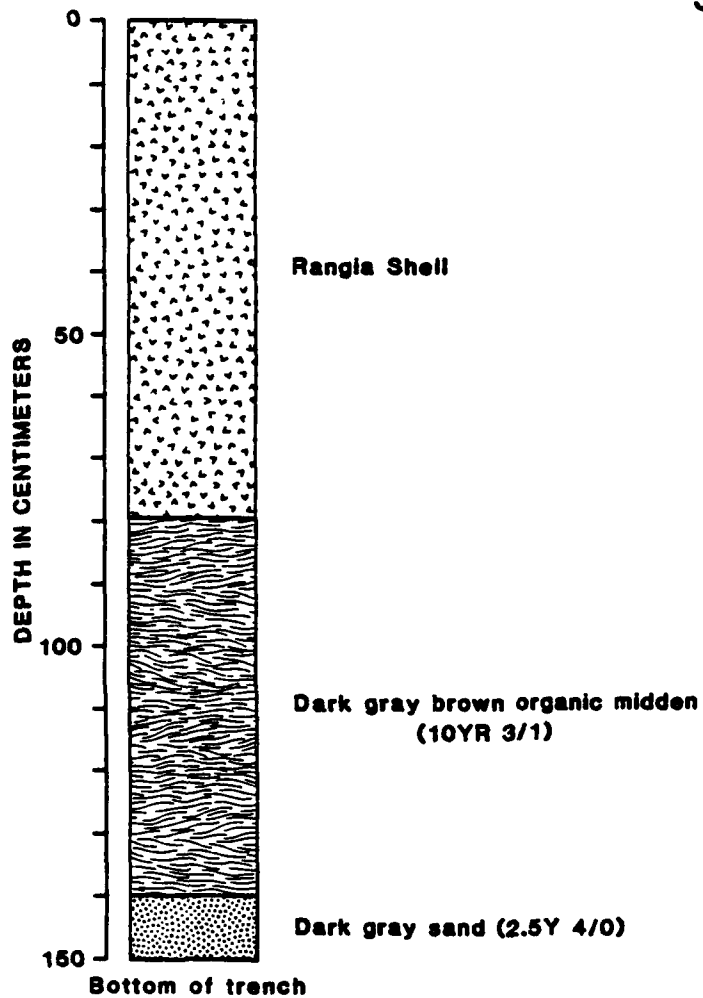


Figure 15. Profile of site 16 OR 116 at wall line station 47+50.

ceramic vessels (Figure 16). In addition, a substantial faunal subassemblage, which received special analysis, was recovered.

16 OR 117. This site is located in the St. James Street to Market Street block, between wall line stations 30+72.79 and 30+82.69 (Figure 17). One whole bottle dating from the late 19th century was recovered from a stratum of dark gray (2.5Y 4/0) clay (Figure 18). The trench alignment was capped with large slabs of concrete which were removed by the backhoe prior to excavation. Subsequent excavation demonstrated successive lenses of fill overlaying the sterile gray batture clay.

In addition to the bottle, the site consisted of the remains of a massive structural feature. During excavation of the inspection trench, the backhoe uncovered and removed two large, horizontal beams. Both contained large spikes along the upper surface. The spikes extended into a series (approximately six) of vertical posts located immediately underneath the beams. The posts, as illustrated in Figure 19, continued to a depth of approximately seven feet below surface. The function of this structure is not clear; however, its general configuration suggests that it may be the remains of a wharf. Brick rubble also was present. No ceramic, faunal, or metal artifacts were observed in association with this site. This paucity of remains makes determination of the exact function of the site difficult. It is possible that additional remains associated with this site exist downriver from wall line station 30+82.69, the limit of the present work area.

Summary

Archeological monitoring of the Jackson Avenue to Thalia Street floodwall alignment located two subsurface historical concentrations. Site 16 OR 116 consisted of a dense artifact concentration extending the entire length of the designated segment of the inspection trench. Artifactual remains included ceramic vessels and sherds, glass bottles, faunal remains, and assorted clothing and miscellaneous artifacts. This site is at the historic location of the Robin Street nuisance wharf. Site 16 OR 117 consisted of subsurface structural remains of a possible wharf site, associated with very few other artifacts.



Figure 16. View of backdirt pile at 16 OR 116, showing concentration of artifacts.



Figure 17. plan of St. James to Market Street t
(sta. 27+19.92 to 30+82.69), showing
16 OR 117.

16 OR 117
Trench 2

MEGA
VOLTAGE
POWER
PLANT
CONSTRUCTION
SERVITUDE

PERPETUAL LEVEE &
FLOODWALL SERVITUDE

TOWER NO. 1
FOUNDATION

BASE FOR
TOPSOY
TOWER

CONC BASE
FOR ELEVATED
NOPS1
STRUCTURE
SCREEN
CHAMBER

NOPS1 115KV PO
(SEE ABOVE)

MCC 4160
LINE 557

16 OR 117

WALL ALINEMENT
AZ 210° 00' 39.0"

520
510
500
490
480
470
460
450
440
430
420
410
400
390
380
370
360
350
340
330
320
310
300
290
280
270
260
250
240
230
220
210
200
190
180
170
160
150
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120
110
100
90
80
70
60
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30
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10
0
-10
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-740
-750
-760
-770
-780
-790
-800
-810
-820
-830
-840
-850
-860
-870
-880
-890
-900
-910
-920
-930
-940
-950
-960
-970
-980
-990
-1000

2nd SWITCH

AZ 210° 52' 25"

POT
M 1.00

MARKET STREET WHARF

LIMIT OF NO-WORK AREA

SYMBOL LEGEND

- D.M.H. DRAIN MANHOLE
- W.M.H. WATER MANHOLE
- M.H. MANHOLE
- S.S. STORM SEWER
- P.P. POWER POLE
- C.B. CATCH BASIN
- L.P. LIGHT POLES
- R.R.SW RAILROAD SWITCH
- P.M. PARKING METERS
- N.C.B. NEW CATCH BASIN
- ▲ N.V.M. NEW VALVE MANHOLE
- 1 UTILITY IDENTIFICATION
- UNDISTURBED TYPE BORING
- GENERAL TYPE BORING
- //// NEW FLOODWALL
- - - - - WATERLINE
- - - - - SEWERLINE
- - - - - POWER LINE
- - - - - FENCE
- - - - - BURIED TEL CABLE
- - - - - AERIAL TEL CABLE

PLAN

SCALE IN FEET



16 OR 116 Reconstructed Profile

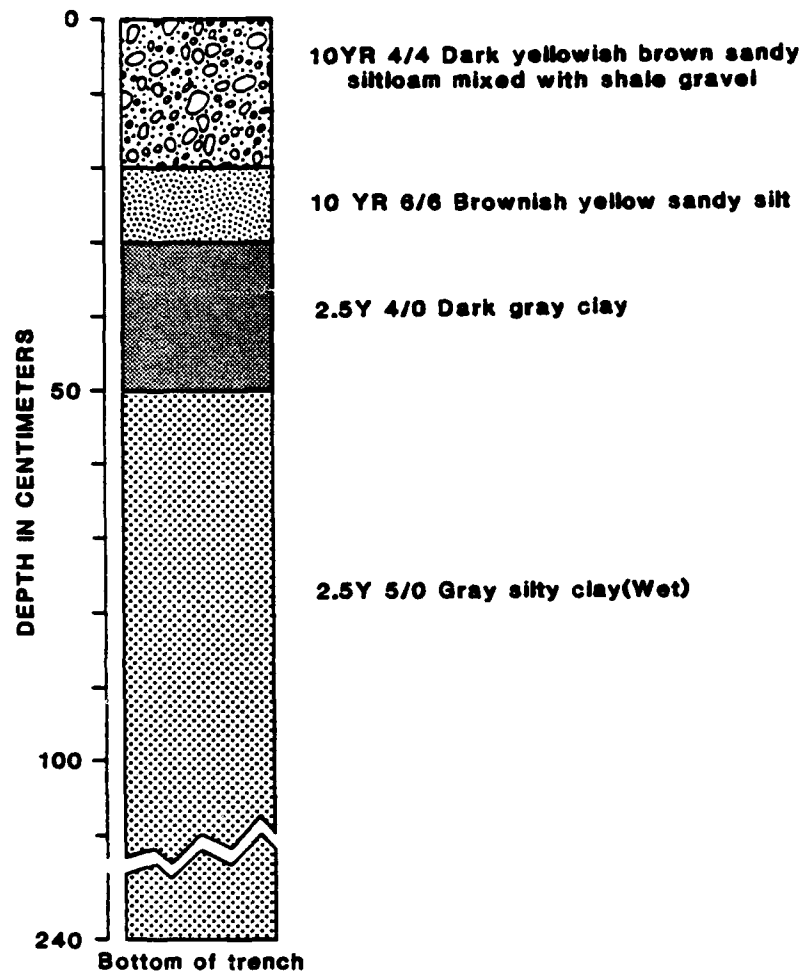


Figure 18. Reconstructed profile of site 16 OR 117..



Figure 19. A view of 16 OR 117, showing one of the vertical posts uncovered during inspection trench excavation.

CHAPTER VI

LABORATORY ANALYSES

Introduction

All artifacts were washed, sorted, and classified, and attribute data were entered in a computerized site catalog. This method allowed manipulation of the artifact data sets. The first and primary classification level was the Category, based on the format currently employed by the Louisiana Division of Archeology. The second level was the Group, or functional classification, based on activity patterns in the cultural system (South 1977:93). The third level was the Type, which attempts to group materials by their comparable diagnostic attributes. The fourth and final level was the Subtype which, when combined with Category, Group, and Type, provided a unique code at a detailed level of pattern analysis. For both sites included in this study, the second level of classification (Group) was not applicable. The artifact assemblage from 16 OR 116 represented a communal refuse depository; therefore, identification of activity patterns was inappropriate. One artifact, a bottle, was recovered from 16 OR 117, making activity patterning impossible. However, the inclusion of the second level of classification permitted a more expedient manipulation of the 16 OR 116 data base, thus allowing consideration of distinct classes of artifacts within their respective material classifications.

Ceramic artifacts for 16 OR 116 and glass artifacts for both sites were given formal archeological classifications. For other classes of artifacts, descriptive overviews of the nature of the materials recovered were presented. The identification and classification of ceramic artifacts are emphasized here because of the utility of ceramics in chronological, economic, and behavioral reconstructions. Glass artifacts also served as chronological indicators.

The secondary nature of the deposit at 16 OR 116 precluded many of the standard archeological analyses. However, this site afforded the opportunity to test the archeological record in other unique ways. When considered as representative of a section of the city, rather than of an individual occupation, this assemblage provided a unique comparative data base. Results of analyses from contemporaneous sites could be compared against this assemblage to determine if the observed chronological behavior and economic patterns reflected the city at large. In addition, results of the 16 OR 116 analysis could be examined to see if they reflect documented national trends.

Ceramics

A fairly coherent and well-developed system of classification has been developed for eighteenth century ceramics, based on technological and stylistic variables. Similar classification for nineteenth century ceramics is not as well defined. Gradual changes in paste and glaze, and the simultaneous use of identical decorative designs on differing ware types, have complicated attempts to delineate a concise ceramic chronology for this period. A combined date range that took all of these variables into account was employed in the assignment of dates for analysis of the ceramic subassemblage. In this manner, eight ceramic types (porcelain, stoneware, ironstone, redware, English mocha, whiteware, faience, and yellowware) with 14 distinct decorative techniques were identified and documented. The adjusted dates are listed in Table 1.

Tin glazed earthenware was considered in three categories. Faience is the general term for tin glazed ware manufactured in France. Similar wares from Holland and England are known as delft. Equivalents in Italy, Iberia, and Mexico are called majolica. Tin glazed earthenware has a soft porous paste, ranging in color from cream to pink. The glaze or enamel is a thick and opaque covering, produced by adding tin oxide to a lead glaze. The paste usually ranges in color from yellow to buff to red. The single example of tin glazed earthenware recovered from 16 OR 116 is a rim sherd from a large faience vessel, typical of those used to ship olive oil in the eighteenth and early nineteenth century.

The majority of the ceramic subassemblage consisted of refined earthenwares, many of which are of nineteenth century English origin. The primary source of imported English earthenwares was the Staffordshire area, located near the port of Liverpool. Led by Josiah Wedgwood, this area was the center for refined earthenware development and production for more than a century. Therefore, emphasis has been placed on constructing a detailed chronology for these wares.

Creamware is a refined earthenware identified by its thin cream colored paste and clear glaze with a slight green tint. A fashionable tableware, creamware frequently was left undecorated; when it was decorated, the primary technique was molded decoration. Applied techniques, while not as popular, also were not uncommon.

Creamware first was perfected by Josiah Wedgwood ca. 1762; by the 1790s, its popularity had secured England's domination of the world ceramic market. Whereas 'delftware' and white salt-glazed stoneware had failed in their attempts

Table 1

HISTORIC CERAMIC SHERD CLASSIFICATION, FREQUENCIES, AND MEAN CERAMIC DATES FROM 16 OR 116

<u>Ware/Description</u>	<u>Date Range</u>	<u>MCD*</u>	<u>Number</u>	<u>Source</u>
<u>Porcelain</u>				
Molded, Soft Paste			6	
Porcelaineous Hotelware	1880-pres.	1930	9	Worthy 1982
Molded, Hard Paste			2	
Soft Paste			32	
Overglaze, Hand Painted,			5	
Soft Paste			9	
Gilded				
Underglaze, Hand Painted,			2	
Hard Paste			<u>65</u>	
<u>Stoneware, Domestic Gray</u>				
Underglaze, Hand Painted			1	
Unidentified			1	
Salt-Glazed			3	
Alkaline Glazed			4	
Albany Slip & Salt-Glazed	1810-1900	1855	1	Goodwin et al.
Brown Salt-glazed			1	
			<u>11</u>	
<u>Stoneware Ale Bottle</u>	1850-1900	1870	17	Goodwin 1986
<u>Ironstone</u>				
Plain White	1850-1900	1875	104	Goodwin et al./South 1977
Plain Gray	1813-1900	1856	4	Wetherbee 1985
Underglaze, Hand Painted			3	
Colored Glaze			1	
Transfer Printed	1813-1900	1856	1	Wetherbee 1985

<u>WARE/DESCRIPTION</u>	<u>DATE RANGE</u>	<u>MCD</u>	<u>NUMBER</u>	<u>SOURCE</u>
Applique			1	
Molded	1840-1900	1870	15	Praetzellis 1980
Annular			1	
Sponge/Spatter	1900-1950	1925	1	Goodwin et al.
			<u>131</u>	
<u>Redware</u>				
Clear glazed			2	
Unglazed			5	
Luster & Slipped			<u>2</u>	
			<u>9</u>	
<u>English Mocha</u>	1795-1890	1843	3	South 1977
<u>Whiteware</u>				
Plain	1820-1900	1860	45	South 1977
Flow Blue			2	
Transfer Printed	1820-1860	1840	2	South 1977/Miller 1980
Annular/Dipped	1820-1890	1855	5	Ramsay 1947/South 1977
Sponge/Spatter	1880-1920	1900	1	Goodwin et al.
Underglaze, Blue				
Hand Painted			1	
Scalloped Rim,				
Straight Lines	1820-1845	1833	1	Miller 1985/South 1977
Unscaloped Rim,				
Impressed Lines	1820-1896	1858	2	Miller 1985/South 1977
			<u>59</u>	
<u>Faience</u>			1	

<u>WARE/DESCRIPTION</u>	<u>DATE RANGE</u>	<u>MCD</u>	<u>NUMBER</u>	<u>SOURCE</u>
<u>Yellowware</u>				
Plain	1830-1900	1865	13	Ramsay 1947
Annular/Dipped	1830-1900	1865	5	Ramsay 1947
Rockingham glaze	1830-1900	1865	2	Ramsay 1947
Molded	1830-1900	1865	2	Ramsay 1947
Ginger Beer Bottle	1830-1900	1865	1	Ramsay 1947
			<u>23</u>	
GRAND TOTAL		1868	319	

to fulfill the Englishman's desire for Chinese porcelains, the creamware alternative succeeded. Creamware's success can be attributed in part to the timely one hundred per cent tariff imposed on the importation of porcelain; in part to astute marketing techniques (Miller 1980); and in part to its cost, which was substantially lower than that of porcelain. While this ware was successful in competing with porcelain, its popularity began to wane in the late 1700s. Wedgwood developed a new ware that could not compete in the market with porcelain but that he hoped would substitute for the preferred ware. This ware, termed pearlware by archeologists and historians, is characterized by its cream-white paste covered with a thin soft blue to blue/green glaze that was thinly potted, especially at the foot rings (Sussman 1977). The bluing was added to imitate the bluish cast given off by Chinese porcelains. This development of an English imitation 'bone china' gradually decreased the desirability of Chinese porcelains. To continue the competition for the porcelain market, potters gradually began to add less bluing to their pearlware glazes until the glaze became almost clear. This clear glazed version generally is referred to as whiteware, although no distinction was made by the potters between wares with bluing and those without. Throughout this period, decorations on both wares remained the same. This process of change was a gradual progression.

Introduction of the ware most commonly referred to as ironstone added a new dimension to the refined earthenware progression. Ironstone first was produced around 1813, but it did not gain widespread acceptance until the 1840s. When this more durable ware became very popular in the Americas, one variety containing bluing--some say in the paste while others say in the glaze--was instrumental in the revival of a preference for blue glazed 'pearlware.' This 'revival pearlware' had a harder, more brilliant glaze than the earlier version; tinting ranged from deep blue to almost clear (Sussman 1977).

For more than a century, few notable changes occurred in the pastes and glazes of either of these wares, making ware distinction difficult. In cases where this distinction could not be made, the term whiteware/ironstone is applied. However, changes did occur in decorative designs. These stylistic variations occurred simultaneously on both ironstone and whiteware. Because of the previously mentioned difficulties in ware distinction, documentation of these stylistic attributes is an essential analytical tool for dating ironstones, whitewares, and whiteware/ironstone. Stylistic documentation, such as George Miller's chronology on shell edged decorations (personal communication 1985), and Wetherbee's (1985) stylistic documentation of ironstone patterns, provides date ranges based upon decoration. The

following decorative types were present on pearlware, whiteware, and ironstone sherds found at the site:

Edged ware

Edged ware, more commonly called "shell edged," was manufactured primarily in blue and green. In use as early as 1775, it was one of the first patterns applied to pearlware. Early examples were intricately molded, presumably to represent naturalistic shell rims. Through time, incised and molded decorations became increasingly simplistic, until the rims became unscalloped. Incisions developed to simply straight lines. Underglaze hand painting applied to enhance molded designs followed a similar progression. In early examples, color application followed the relief of the molding; in later examples, the color was no more than a straight band following the circumference of the rim.

Transfer Printing

Transfer printing was produced by English potters as early as 1750, but it only was applied as overglaze decoration until post-1760. This process started with a design engraved on copper plating. Once the plate was covered with the paint, tissue paper was placed over it, transferring the design to the tissue paper, which in turn was transferred to the ceramic object. When the color was dry, the paper was washed off, leaving only the painted design. Transfer printing enabled the potter to produce identical intricate detailed designs on innumerable matching pieces at a cost far below that of similar hand-painted pieces (Miller 1980:4).

Mocha

Dendritic and/or finger-trailed "common cable" decorative designs applied on a dipped background with banded borders occurred from the eighteenth through the nineteenth centuries.

Flow Blue

Flow Blue is a variation of transfer printing introduced in the early 1820s by Josiah Wedgwood II. Thought by some to have been a mistake of the potters, this decorative design was produced intentionally by placing cobalt transfer printed wares in saggers during the glaze firing, resulting in the flowing of the color

outside the lines of the pattern. There are two distinct categories of Flow Blue. 'Old' Flow Blue was used primarily on stoneware; patterns were excessively blurred, often beyond the point of pattern recognition. 'New' Flow Blue was used on ironstone from the late 1800s to early 1900s. Designs were sharper in definition, and often were embellished with overglaze gild. Popularity of cobalt as a primary decorative color was fostered by the 1775 discovery of a cobalt source near Truno, England (Blake 1971:iii). By 1818, most of the 140 Staffordshire potters used cobalt blue as their major decorating color. Prior to that time, the high cost and limited availability of imported cobalt limited its use (Blake 1971:iv).

Yellowware can be distinguished by yellow paste and clear glaze. The process for manufacturing yellowware was introduced to the United States as early as the 1830s; it rapidly became popular with American potters. Generally, yellowwares from American sites are regarded as being of domestic manufacture. Usually unmarked, yellowware vessel forms include items such as large bowls, chamber pots, spittoons, and ginger beer bottles. Decorations can be divided into three basic categories: simple banding or rings in white, yellow, brown, or blue; rockingham type glaze, the most popular of the yellowware decorative designs, characterized by the dark brown to yellow sponged-glaze effect known as tortoise shell; and a third, less popular, variation consisting of designs similar to those evidenced on English mocha. In popular use from the mid-1850s until the turn of the century, yellowwares still are produced in limited numbers today. However, modern yellowware generally is whiter in paste with a yellowed glaze. While treated separately by some authorities, brownware and yellowware differ essentially only in degree of clay refinement and baking temperature, the lighter ware being more highly fired (Ketchum 1971:93).

Porcelain is a highly vitrified ceramic with an alkaline glaze. It first was manufactured in Asia and later in England, continental Europe, and the United States. Porcelain clay was used to produce items including fine dinnerware, accessory serving pieces, and ornamental pieces such as figurines. One later porcelain type, a borderline type between stoneware and porcelain is referred to as "porcelaneous stoneware." This was a more durable type produced by the introduction of ball clay into the paste, and was used most commonly for hotel, restaurant, and institutional dinnerware (Worthy 1982:337).

Stoneware is a hard paste impermeable ceramic. Glazes, while commonly used, are considered esthetic rather than

functional. While American potters always had the resources to produce their own stoneware, it was not until the late eighteenth century that serious attempts to produce stoneware commercially were undertaken. Domestic salt glazed stoneware was in limited production during the early eighteenth century (at the same time, salt glaze was declining as a primary pottery type in Europe). It flourished in early to mid-nineteenth century, but its popularity waned in the latter half of century.

From 1775 to the 1850s, stoneware vessel shapes and decorative designs were influenced by the highly stylized European forms. During the mid-nineteenth century, several factors were instrumental the changing stoneware shape and decorative technology. Advancements in glass and refrigeration technology, combined with increased demand, necessitated the sacrifice of detail for utilitarian shapes and simplistic decorative techniques. By 1890, most stoneware was undecorated and mechanically mass produced. This enabled small companies to stay in the increasingly competitive container market. Stoneware ale bottles were in production in the latter half of the nineteenth century; they generally have a buff body and yellow glaze (Goodwin et al. 1986).

The ceramic sherd counts for 16 OR 116, grouped by ware and decorative technique, are illustrated in Table 1. Sixty per cent of the 320 sherds from this subassemblage were identified as refined white earthenwares. This percentage includes 131 ironstone and 59 whiteware sherds. Porcelain, the second largest identified type, represented twenty per cent of the recovered ceramic sherds. Imported stonewares were represented by 17 ale bottle sherds. Additionally, eleven domestic stoneware sherds, displaying several regional variations, were identified. Examples of domestic yellowware consisted of plain, molded, annular, and rockingham glazed sherds. Redwares included two clear glazed and five unglazed coarse paste sherds, as well as two sherds of refined redware which were white slipped on the interior and had copper lustre on the exterior. This decorative style on redware vessels is commonly referred to as "poor man's silver." In addition, there were four examples of earlier ceramic wares and types, including three refined English mocha sherds and one sherd of thick coarse paste faience.

Only two ceramic sherds were recovered from the St. James to Market Street trench: a clear glazed, thick buff bodied earthenware sherd from a utilitarian vessel, and one lead glazed sewage pipe sherd.

Glass

Since artifact recovery only included collection of potentially diagnostic materials, it is understandable that fifty-two per cent of the bottle glass displayed diagnostic attributes. Therefore, a detailed bottle glass chronology is included in this analysis. Technology for mold produced bottles has existed for centuries. However, not until the seventeenth and eighteenth centuries, when hinged metal molds were developed, did mold-blown bottles begin to replace free-blown bottles (Munsey 1970:38). Use of these molds did not become universal until the early 1800s. At that time, the pace of technological advancement increased dramatically in many areas of the glass manufacturing industry.

Development of shoulder and full height molds, new empontilling methods, and improved finishing techniques were primary areas of advancement. Shoulder height molds are recognized by absence or disappearance of seam lines just above the curve of the shoulder. Main types are the shoulder height multi-piece (1820-1920) and the one-piece dip mold. On full height molds, vertical seams appear from the base to just below the lip. Above this point, seams were obliterated during the finishing process. Principal varieties of this mold type include bottom hinge, 1810-1880 (Munsey 1970:39), with a basal seam running either diagonally or straight across the bottom; multi-part leaf mold, 1850-1920, with two, three, or four vertical leaf parts and a separate base part; and a 3-part dip mold, 1850-1920, an improved version of the dip mold that allowed variation in bottle shape not possible with the dip mold. Separate basal parts such as cup and post bottom are used as descriptive terms; unfortunately, these mold attributes provide no chronological information, since they appear on both machine-made and hand-molded containers.

Two additional molding variations used at that time were turn-paste and plate molds. Turn-paste molds (1870-1920) produced a symmetrical bottle by turning a bottle inside a paste-coated mold. While this method obliterated seam lines, it also prevented the embossment of bottles. Plate molding, 1821-1920 (Jones 1985:49), was an adaptation of the previously mentioned molds and contained removable or interchangeable plates. Thus, the same main or base mold could be used to manufacture bottles with different embossments.

There were four common methods of holding bottles during the finishing stage of hand blown glass. All of these methods held the bottle by the base, allowing the craftsman free access to finish the bottle lip. Two of these methods were glass-tipped, using either a solid iron bar or blow

pipe. Solid iron bar pontils are characterized by a solid jagged circular scar left when the rod is broken off from the bottle base. Blow pipe scars are similar, except that the scars are jagged rings, not solid like a rod scar. While both methods still were employed on pharmaceutical bottles until the turn of the century, their use on other bottle types was replaced by bare iron empontilling in the mid-1800s.

Bare iron empontilling is a quicker process, and involved a flared iron rod which was heated red hot and applied directly to the bottle base surface. When it was removed, a smooth, indented, circular scar remained. This method was popular until the early 1870s, when it was replaced by the snap-case method as the primary empontilling method. A snap-case empontilling device is defined as "a four-pronged clip attached to an iron rod, a closely fitting case of wrought iron mounted on a long handle from which only the neck of the bottle is allowed to project" (Jones 1985:46). Since this method provided no evidence of its use, it is not helpful in dating.

The last step in bottle production is called the finish. This step involves the formation of the bottle lip. Prior to the mid-1800s, bottle lips were finished by various methods, including cracked-off, burst-off, everted or flared, flanged, fold-in and fold-out, and a number of applied lip techniques. The use of these methods was dependent on the intended bottle use, closure method, and artisan preference. Applied and flanged lips were present among the 16 OR 116 glass subassemblage. The former is a general term which refers to the application of an additional glass strip to the reheated bottle neck, the exact shape and width depending on the intended closure. Flanged lips are formed by manipulation of the glass at the end of the neck. This glass is flattened so as to project outward horizontally from the bottle neck (Jones and Sullivan 1985).

Two primary methods employed in the mid- to late nineteenth century are lipping tool and flared or fired lip. A lipping tool is a hand-held clamp and plug device. The plug was placed in the bore of the reheated bottle neck and the two-pronged clamps around its outer edge. The tool is rotated manually to shape the lip. Evidence of this method is the obliteration of mold seams on the neck, horizontal striations in the glass, and an excess of puddled glass on the neck at the bottom of the tooled finish.

The fired or flared lip is a method by which the neck of a full height mold bottle was reheated by placement in the 'glory hole' of the furnace. This reheating melted and smoothed rough edges left by the mold. Additionally, this

process also faded or obliterated seam marks, depending upon the amount of reheating and the distinctiveness of the marks.

Color, also can be used as a functional indicator for nineteenth century bottle glass. Dark green, green, and olive green were common colors used for spirit bottles. Theoretically, this color prevented harmful rays of light from damaging the product. Various shades of aqua, ranging from green-blue to blue-green, were used for bottled mineral and soda water products. The widespread use of clear glass precludes additional interpretive information.

Ninety per cent of the glass sherds recovered from 16 OR 116 were identified as whole, partial, or fragmented bottles. As Table 2 illustrates, fifty-two per cent of this glass provided temporal information. Forty-one whole or partial bottles were recovered. Thirty-seven were spirit bottles, while only four were identified as mineral or soda water containers. Additionally, forty per cent of the bottle glass sherds were shades of green, denoting spirit containers; 29 per cent were thick aqua colored sherds characteristic of mineral and soda water bottles.

Four examples of clear tableware glass were identified among the glass subassemblage. Illustrated in Table 2, these consisted of two tumblers molded in the familiar faceted pattern; one molded stemware fragment; and one unidentified tableware rim fragment. The remaining glass was classified as five window glass fragments (2 mm) and one fragment of clear, thin chimney lamp glass.

Two unidentified bottle sherds and one whole bottle were recovered from the St. James - Market Street trench. The whole bottle from 16 OR 117 is an aqua mineral or soda water container, embossed "City Bottling Co. Limited 67 & 71 South Liberty St. New Orleans LA. This bottle not to be sold" (Figure 20).

Miscellaneous Artifacts

Samples of architectural elements also were collected from 16 OR 116. These included six partial bricks, four segments of roofing slate, and five fragments of window glass. On closer examination, these materials provided no information that could contribute to the analysis of this site.

A sample of 25 leather shoe parts was obtained in the anticipation that they might provide interpretive information. There were two whole boots and one shoe among this number. In addition, there were three inner soles, two

Table 2

GLASS SHERD CLASSIFICATION, FREQUENCIES, AND MEAN DATES FOR 16 OR 116

<u>Description</u>	<u>Color</u>	<u>Number</u>	<u>Date Range</u>	<u>MGD*</u>	<u>Source</u>
<u>Bottle</u>					
<u>Mold Types</u>					
Full Height Mold	Green	2	1810-1880	1845	Munsey 1970
Full Height Mold	Lt. Green	1	1810-1880	1845	Munsey 1970
Full Height Mold	Aqua	3	1810-1880	1845	Munsey 1970
Full Height Mold	Clear	1	1810-1880	1845	Munsey 1970
Turn Paste Mold	Dark Green	7	1870-1920	1895	Jones & Sullivan 1985
Turn Past Mold	Green	1	1870-1920	1895	Jones & Sullivan 1985
2 Piece Mold	Aqua	2	1810-1920	1845	Munsey 1970
3 Part Full Height Mold	Dark Green	3	1850-1920	1885	Munsey 1970
<u>Pontil Marks</u>					
Iron Pontil	Dark Green	7	1845-1875	1860	Munsey 1970
Solid Rod Pontil	Lt. Green	1	1800-1890*	1845	
Solid Rod Pontil	Aqua	1	1800-1890*	1845	
Blow Pipe Pontil	Aqua	1	1800-1890*	1845	

Bottle Glass

Bottle Finishes

Lipping Tool	Dark Green	4	1850-1920	1885	Munsey 1970
Lipping Tool	Aqua	2	1850-1920	1885	Munsey 1970

Applied Lip	Dark Green	4			
Applied Lip	Green	2			
Applied Lip	Aqua	1			

Combined Technology

Iron Pontil/ Lipping Tool	Green	11	1850-1875	1862	Munsey 1970/ Jones & Sullivan 1985
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Iron Pontil/ Lipping Tool	Aqua	6	1850-1875	1862	Munsey 1970/ Jones & Sullivan 1985
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Unidentified Bottle

Dark Green	22
Green	15
Aqua	16
Clear	2
Amber	1

Tableware

Tumbler	Clear	2
Stemware	Clear	1
Unident. Molded	Clear	1
Window (2 mm)	Aqua	5
Chimney Lamp	Clear	1
Unidentified	Clear	4

* Denotes Adjusted Post Date



Figure 20. A locally produced mineral or soda water bottle recovered from 16 OR 117, dating 1896-1898. The complete statement embossed across the bottom read, "THIS BOTTLE NOT TO BE SOLD."

outer soles (with wooden heels), and numerous upper shoe leather fragments. While all shoe soles demonstrated considerable wear, none displayed any evidence of repair beyond the possible reattachment of a heel. The shoes displayed the technology of manual manufacture (Figure 21). The two recognized nineteenth century technological characteristics identified among this collection were French rivets and use of the Blake Sewer (see below). The French rivet is a small-headed tack, usually constructed of steel or brass, which was used to attach the soles of the shoes to the leather uppers (Wright 1922:228). These rivets were used in the production of three of the whole or partial shoes in this collection. The Blake Sewer sewed through the inner and outer sole, while catching the edges of the upper leather (Wright 1922:227). However, the toe of the shoe still had to be finished by hand. One boot displayed evidence of this manufacturing technique.

Additional miscellaneous artifacts recovered from 16 OR 116 are listed by material classification in Table 3. These include two ball clay pipe bowl segments, two bottle corks, one piece of lamp chimney glass, eight tin can fragments, and one oyster shell. A small collection of miscellaneous artifacts was recovered during the St. James - Market Street trench monitoring, including three undiagnostic brick fragments.

Temporal Analyses

Temporal analyses were conducted for the ceramic and glass subassemblages; results are listed in Tables 1 and 2. Manufacturers' marks and bottle embossment information are listed in Tables 4 and 5. Additional temporal information derived from shoe manufacturing technology also is discussed.

Ceramic Dating

Temporal analysis of ceramic sherds involved identification, classification, the calculation of mean ceramic dates, and use of manufacturers' mark date ranges. The ceramic subassemblage initially was examined to establish the percentages of predominant ceramic types. The types identified were ironstone (1850-1900), whiteware (1829-1900), and yellowware (1830-1900). As illustrated in Table 1, these types comprise sixty-six per cent of the total ceramic sherd count. Porcelain, the fourth major ceramic type, was omitted from this analysis because it was available over a wider range of dates than the other three combined. The three types considered during this stage of analysis are found most commonly on sites dating from the latter half of

Table 3

MATERIAL CLASSIFICATIONS BY COUNT AND FREQUENCIES FOR 16 OR 116
(Louisiana Division of Archaeology Classifications)

<u>Ceramics</u>	<u>Building Material</u>	<u>Fauna</u>	<u>Flora</u>	<u>Glass</u>	<u>Metal</u>	<u>Shell</u>
Pipes-2	Bricks-6	Shoes-25	Cork-2	Window-5	Furniture Hardware-1	Oyster-1
Vessels-320	Mortar-1	Bone-49		Bottle-116	Can-8	
Unidentified-7	Roofing Slate-4			Table-4	Slag-1	
				Lamp-1	Unidentified Object-6	
					Unidentified-6	

Table 4

MANUFACTURERS' MARKS FOR CERAMICS AND GLASS FOR 16 OR 116

Ceramic Marks

<u>Mark</u>	<u>Description</u>	<u>Date Range</u>	<u>Number</u>	<u>Source</u>
Elsmore	(Circular Stamp)	1853-1871	1	Godden 1964
John Alcock	(Circular Stamp)	1848-1861	1	Godden 1964
Edwards		1842-1851	3	Wetherbee 1985
James Edward	(Icon & Unicorn)	1842-1851	1	Godden 1964
J. Clementson	(Circular Stamp)	1839-1864	4	Kovel 1986
Davenport	(Anchor Stamp)	1793-1887	2	Godden 1964

Bottle Marks

Embossment

<u>Date Range</u>	<u>Number</u>	<u>Source</u>
Circa 1845	1	Baldwin 1973
Circa 1846	1	Baldwin 1973
1856-1858	1	Soards 1856-1858

"Bartine's Lotion for Rheumatism
C.S. ** ? Bartine's & ?
New York"

"AYER'S, Cherry Pectoral
Lowell, Mass. - For croup,
sore throat, asthma, etc."

"Pablo & Co.
334 & 336 Royal Street
New Orleans"

Table 5

16 OR 116 CERAMIC MANUFACTURERS' MARKS BY TYPE, COUNT, AND PLACE OF ORIGIN

<u>Mark</u>	<u>Ware</u>	<u>Location</u>	<u>Country</u>	<u>Count</u>
Elsmore	Ironstone, Plain	Tunstall	England	1
John Alcock	Ironstone, Plain	Cobridge	England	1
James Edwards	Ironstone, Plain	Burslem	England	4
J. Clementson	Ironstone, Molded	Hanley	England	4
Davenport	Ironstone, Plain	Longport	England	2



Figure 21. Selected shoe parts recovered at 16 OR 116.

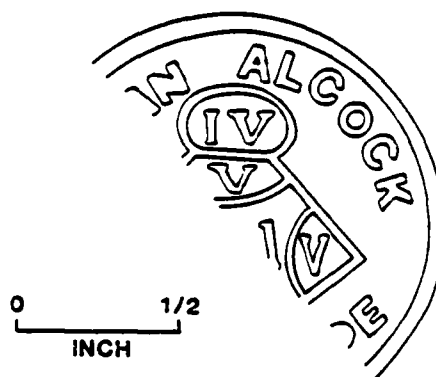
the nineteenth century. Mean ceramic dates there were calculated using the formula developed by Stanley South (1977). Date ranges for ceramic types and decorative techniques used in this computation (Table 1) were derived from manufacturing dates and popularity use patterns.

Temporal interpretation indicates that the plurality of ranges fall within the latter half of the nineteenth century. The site mean ceramic date of 1868 is based on 234 datable sherds. Exceptions to the date pattern are a shell edged whiteware sherd (1820-1845), and a faience sherd which dates from the eighteenth to early nineteenth century. The presence of these sherds, while not consistent with other temporal data, is not surprising considering their disturbed depositional context.

Manufacturers' marks provide the most accurate ceramic dates. Twelve whole or partial datable ceramic marks were found at the Robin Street wharf; these are listed in Table 4. Table 5 demonstrates that all of the identified ceramic manufacturers' marks were produced in the Staffordshire area of England. Reproductions of these marks are illustrated in Figure 22. In addition, one of the transfer printed ironstone vessels bearing the Davenport mark also bears the stamp of "Henderson & Gaines," a New Orleans import firm. A plate recovered from the Algiers Point Historic District (Goodwin, Yakubik, and Gendel 1984) displayed the same two marks. This firm was a New Orleans importer located on Canal Street and was probably one of the city's major importers of Davenport's products.

The majority of manufacturers' dates form a tightly clustered set of date ranges. These ranges approach or pass the middle of the nineteenth century, but do not extend beyond the end of the nineteenth century. Date ranges for the two exceptions to this pattern span nearly the entire nineteenth century and thus encompass the cluster of ranges defined for the remainder of the manufacturers' marks.

In addition, three recovered stoneware ginger beer bottles were marked "PRICE, BRISTOL." Stoneware bottles of this type were manufactured in select pottery centers throughout England in the mid- to late nineteenth century. Bristol, located on the southeast coast of England, was the hub of one such area (Godden 1964:15). Collectively, the data derived from these marks suggest that the ceramic deposition at the Robin Street nuisance wharf post-dates 1850.



OPAQUE CHINA
MANUFACTURED FOR
HENDERSON & GAINES

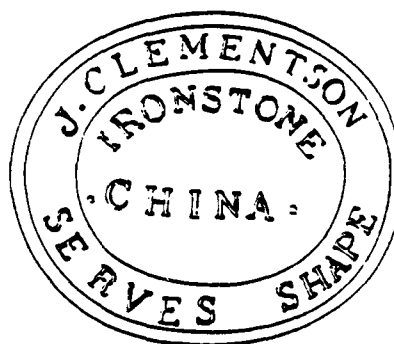


Figure 22. Ceramic manufacturers' marks recovered from 16 OR 116.

Glass Temporal Analysis

Temporal analysis of the glass subassemblage involved examination of bottle sherds for diagnostic manufacturing techniques and datable bottle embossments. Sixty sherds were assigned date ranges based on manufacturing techniques. These techniques included four mold, three pontil, and two lip finishing methods. On bottles where more than one datable manufacturing technique was evidenced, a combined range for these techniques was considered in the assignment of date ranges. As illustrated in Table 2, all of the manufacturing techniques that were encountered have date ranges in the nineteenth century, producing a mean glass date of 1863. Recent research into bottle reuse suggests that "...there is a possibility of time lag between the dates of manufacture and disposal of bottles, reducing their usefulness in dating sites" (Busch 1987:77). However, analysis results for 16 OR 116, like those of the Algiers Point site (Goodwin, Yakubik, and Gendel 1984), demonstrate that bottles still enter the archeological context more rapidly than ceramic vessels. Bottles clearly are a more accurate date indicator for mid- to late nineteenth century assemblages.

Among the glass artifacts, eight bottles displayed whole or partial embossments statement. Seven of these bottles were from 16 OR 116; four of the seven are illustrated in Figures 23, 24, and 25. Date specific information was determined for three of these bottles. The two patent medicine bottles, BARTINE'S LOTION, a topical remedy for rheumatism, sprains, etc. (Figure 24a) and AYER'S CHERRY PECTORAL, a cough remedy (Figure 23) were assigned temporal information by use of documented advertisements (Baldwin 1973) (Table 4). The dates, circa 1845 and circa 1846, are not mean dates for the products' production, but rather are dates derived from researched newspaper advertisements, making their contribution to the site's temporal assignation limited. The third bottle (Figure 24A), a Pablo & Co. mineral water bottle, was dated by the use of Soards' New Orleans City Directory (1856-1858). This company was still in operation in 1874; however, in 1859 there apparently was a reassignment of street numbers on Royal Street, which was noted in the company's advertisement in Soards' city directory. No date specific information could be obtained for the mineral or soda water bottle embossed "White Sulphur Water, Greenbrier, VA."

The one whole bottle recovered from the 16 OR 117 (Figure 20), bore the embossment "City Bottling Co., Limited, 67 & 71 South Liberty St., New Orleans LA, This bottle not to be sold." The specific contents of this bottle are unknown (probably mineral or soda water). This bottle,

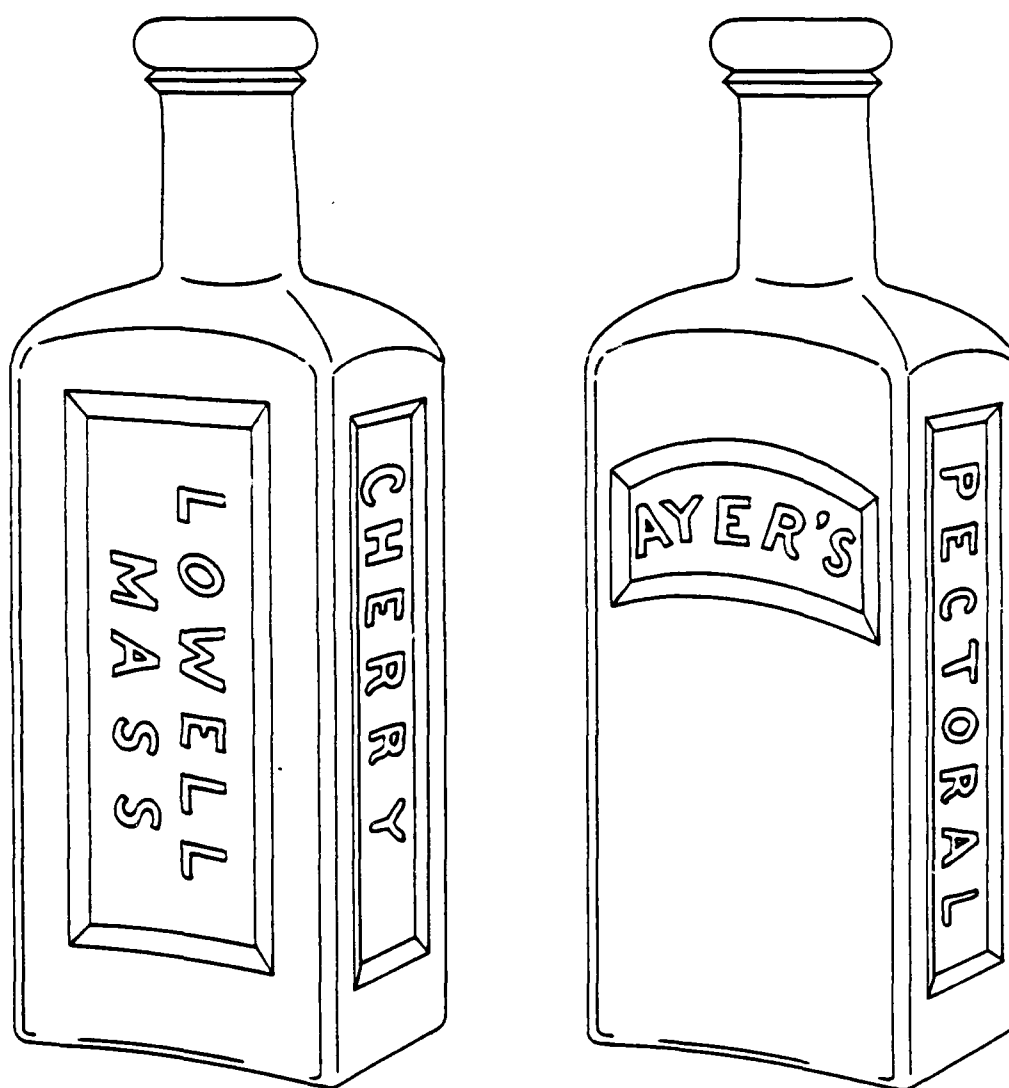


Figure 23. An "AYER'S CHERRY PECTORAL" bottle (circa 1846) recovered from 16 OR 116. Pectoral was a common term for cough remedy.

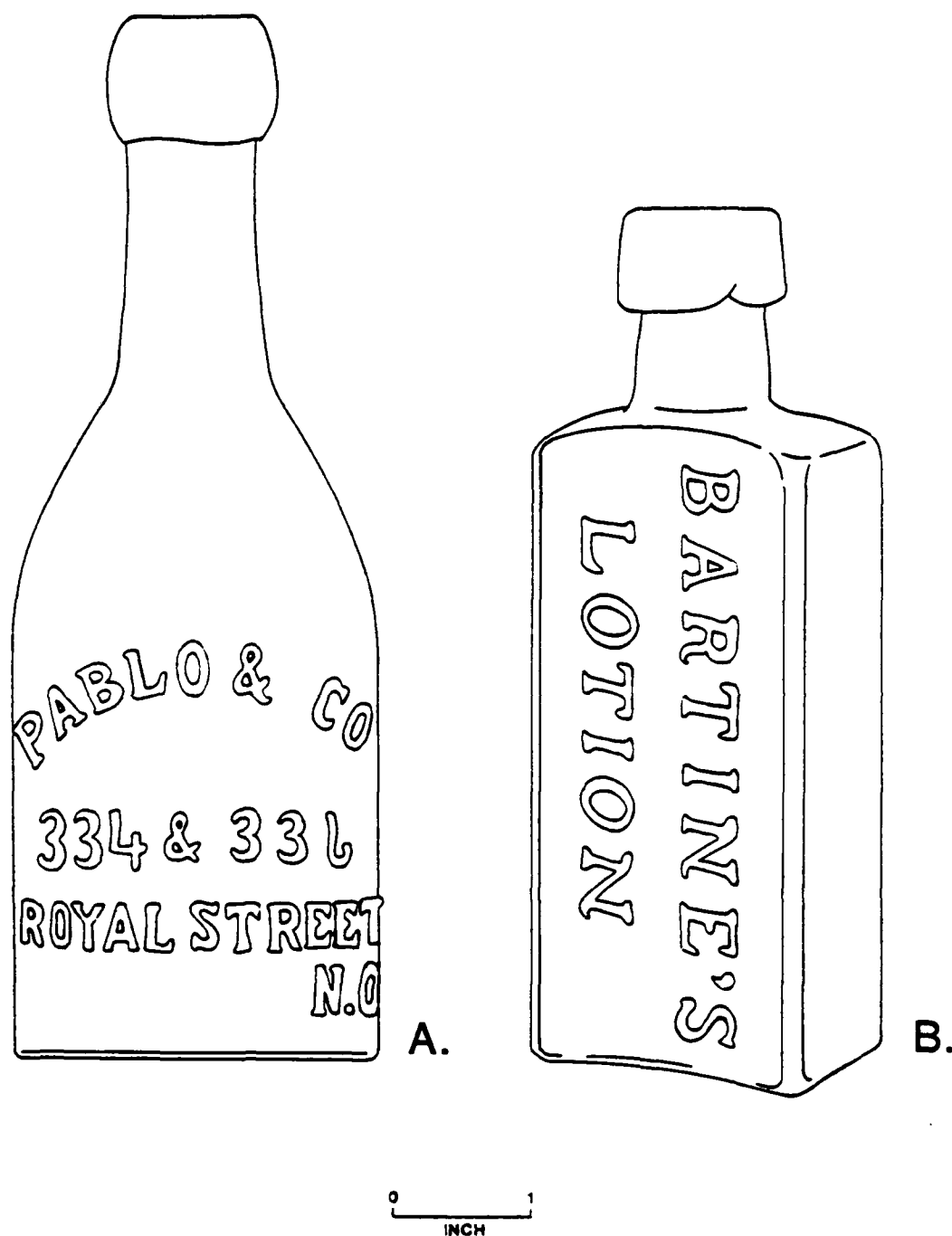


Figure 24. Additional datable bottles recovered from 16 OR 116: a) Pablo & Co. (1856-1858), a mineral or soda water bottle; b) Bartine's Lotion (circa 1845), a topical remedy for rheumatism, sprains, etc.

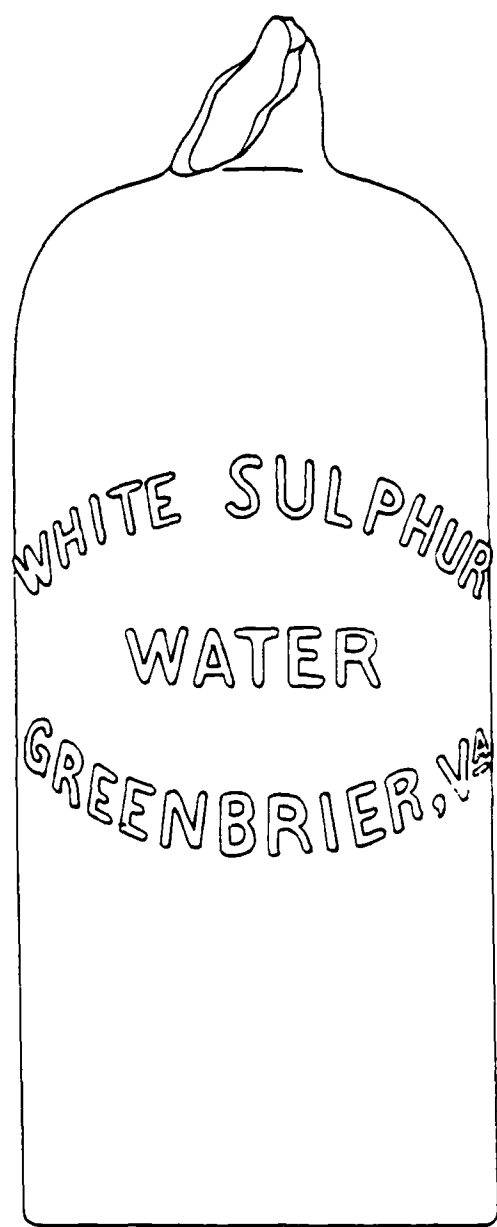


Figure 25. Embossed bottle recovered from 16 OR 116, "WHITE SULPHUR WATER, GREENBRIER, VA." The name implies that this bottle contained mineral or soda water.

the only datable artifact from the trench, also was identified and dated by use of Soards' New Orleans City Directory. It was determined that this company was located at that address between 1893 and 1896. The company was in business until 1905, but moved to 322-332 South Liberty in 1897.

The information derived from datable glass artifacts is relatively consistent with information derived from the ceramic subassemblage. The variation in dates for these two classes of artifacts can be attributed to the slight differences in lag time for their entry into the archeological context. The combined date range information for manufacturing technology is indicative of mid to late nineteenth century deposition.

Miscellaneous Dates

The only other chronological information for the 16 OR 116 assemblage was derived from the sampling of collected shoes. The two previously described nineteenth century technological advancements, the French Rivet and the Blake Sewer, were introduced in the shoe industry at large during the mid-nineteenth century. However, shoe-making was a highly individualized craft at that time; the preference of the individual craftsmen probably explains why so few of the specimens exhibit advanced techniques.

Ceramic Vessel Form Descriptions

A study of vessel forms was undertaken to identify any trends in function. In order to do this, the vessel forms first were grouped into categories based on functional intent. The categories employed in this investigation are based on Worthy (1982:339-340), and are as follows:

I. Food Vessels

1. Serving
2. Eating
3. Drinking
4. Utilitarian (kitchen)

II. Non-food Vessels

1. Decorative
2. Utilitarian (household)

III. Unidentified

Forms were identified for 155 whole or partial ceramic vessels. Statistical information for these vessels by function and form for each identified ceramic type is

contained in Table 6. Ninety-five per cent of the vessels were identified as food-related vessels; the largest number of vessels was associated with eating activities. The majority of these were plates of either porcelain or refined white earthenware (i.e., ironstone or whiteware). Among the vessels not related to food were five chamber pots, one wash basin, and two decorative jar lids. The percentages of different vessel forms can be applied directly to the frequency of their use, by virtue of the fact that the more a vessel is used, the higher the probability of breakage. Consequently, the predominance of plates is indicative of high frequency use.

Comparative Analysis

Comparative analysis of the 16 OR 116 artifact assemblage with contemporaneous sites in the City of New Orleans was conducted in an attempt to determine whether the artifacts recovered from the Robin Street nuisance wharf were indicative of the city at large. Comparisons were made on the basis of economic status and marketing or purchasing patterns.

Ceramic Manufacturers' Mark Comparison

By the mid-1810s, the primary trade conducted out of the port of New Orleans was with England (Clark 1970). What remained to be established was whether this predominance of trade was reflected in the ceramic types used by the local population. Improved white bodied earthenwares (ironstone and whiteware) were manufactured by both British and American potters during the nineteenth century. Examples of both of these types were found at 16 OR 116 (the nuisance wharf). However, only the ironstone sherds displayed manufacturers' marks, and all of these were of British potters (Tables 4 and 5).

In comparison, ceramics of British origin from Algiers Point (Goodwin, Yakubik, and Gendel 1984:150) represented only 63.8% of the marked ceramics. This same pattern was noted in the analysis results for two sites excavated on Esplanade Avenue and Rampart Street (Castille et al. 1982:156). However, unlike the Robin Street nuisance wharf and Algiers Point, where marks occurred predominantly on ironstone sherds, English marks from contemporaneous components at the Esplanade and Rampart Street sites occurred on both whitewares and ironstone vessels. In all three sites, the English marks were from the Staffordshire area. These comparisons illustrate that despite the cursory recovery methods employed, the resulting collection of

Table 6

VESSEL FORMS FROM ROBIN STREET SITE

<u>Vessel</u>	<u>Porcelain</u>	<u>Refined Earthenwares</u>	<u>Redwares</u>	<u>Yellowwares</u>	<u>Total</u>
I. Food Vessels					
Serving					
Serving Bowl	3	12		2	17
Pitcher	2	16	2		20
Tureen	2			1	3
Platter		9			9
Subtotal					49
Eating					
Plate	21	39		1	61
Small Bowl	2	7			9
Egg Cup	1				1
Subtotal					71
Drinking					
Cup	4	10			14
Saucer	1	7			8
Subtotal					22
Utilitarian (Kitchen)					
Mixing Bowl		1	2	2	5
II. Non-food Vessels					
Decorative					
Cover		2			2
Utilitarian (Household)					
Chamber Pots		1		4	5
Wash Basin		1			1
Subtotal					6
TOTAL	36	105	4	10	155

ceramic sherds at least to some degree reflects ceramic marketing practices in New Orleans during the mid- to late nineteenth century.

In the years following the Civil War, American pottery technology advanced rapidly, making American ceramic tablewares competitive with those of the English makers. However, there remained a bias toward English wares among the general population. In order to compete, American potters routinely imitated English marks (Worthy 1982:330). This bias is reflected by the absence of any American manufacturers' marks from the 16 OR 116 ceramic subassemblage. However, other contemporaneous sites, such as the Algiers Point Historic District and the Esplanade Avenue and Rampart Street excavations, do demonstrate a small representation of American potters. Only one U.S. mark was recovered from the Esplanade Avenue and Rampart Street excavation. While the Algiers Point Historic District excavations produced numerous U.S. marks, several of these were obvious imitations of the English Royal Arms mark.

While they do not represent accurately the purchasing practices of the city at large, the manufacturing marks included in the 16 OR 116 ceramic subassemblage are indicative of the trend in the city towards importation of English ceramic tablewares, which coincided with the nationwide preference pattern.

Comparative Socioeconomic Scaling

Attempts to conduct a socioeconomic comparison based on the ceramic decorative design technology were hindered by the sampling method employed during artifact recovery. Methods such as Miller's economic scaling (Miller 1980) are based on the percentages of differing levels of design technology and on the detail and time required to produce such products. This method could not be employed realistically because ceramic artifact recovery was biased selectively towards diagnostic decorative techniques. This biased sampling procedure resulted in a higher percentage of upper level ceramic types. However, in his discussion of porcelain, Miller indicates that porcelain occurs only in the upper two scaling classifications, because it rarely occurs undecorated or decorated in the simplest of designs (Miller 1980:14). At 16 OR 116, porcelain comprised 20 per cent of the recovered ceramic wares. This percentage is higher than the 14.4 per cent recorded for Algiers Point Historic District (Goodwin, Yakubik, and Gendel 1984), and it is significantly higher than the 8.6 per cent from 16 PL 84, a wealthy plantation site (Harlem Plantation) (Goodwin, Gendel, and Yakubik 1983). Since deposition at this site represented

the refuse of intracity regional trash collection, it is safe to suggest that the neighborhood contributing to this refuse was one of high to medium economic status.

The status ascribed by this ceramic analysis is supported by the ceramic vessel forms and by the faunal analyses. As the previous discussion on vessel forms noted, there is a high percentage of plates among the ceramic forms. This is an indicator of specific eating habits, such as the serving of cut meats rather than soups or stews. There is a high percentage of sawed bones of meatier portions, with cuts of medium to inexpensive value predominating. The combined information provided by these analyses supports the findings of the ceramic analyses.

Faunal Analysis

For over a decade, analysis of archeologically recovered faunal remains has aided in the interpretation of historic sites. However, the majority of analyses undertaken have been of faunal assemblages from rural contexts. Only within the last few years have faunal remains from urban sites been recognized as a valuable source of information. Recent studies have been used to identify apparent differences between rural and urban diets in the South. Evidence suggests that inhabitants of urban areas tended to rely more heavily on domestic, rather than wild mammals, and then utilized more species of domesticates than did their rural contemporaries. Domestic and wild bird species played a greater role in urban diet, although the range of wild species consumed was more limited than in rural areas (Reitz 1986). Analyses of assemblages from sites in New Orleans generally support this theory, and indicate that among domesticates, beef was consumed more frequently than was pork, and that pork was eaten more often than mutton. Chicken was the most prevalent species of domesticated fowl (Castille et al. 1982; Goodwin and Yakubik 1982; Ruff and Reitz 1984). Finally, analyses of faunal material from urban sites indicate that cuts of beef can be an indicator of economic status (Castille et al. 1982).

A very small collection of faunal remains was recovered from the Robin Street dump or "nuisance wharf" site (16 OR 116) in New Orleans. Recovery methods, described above, greatly influenced the character of the assemblage. Only sixty-nine bone specimens were recovered; almost all were large and identifiable. The bones were in an excellent state of preservation, further facilitating the identification process. Despite the small and undoubted biased nature of the assemblage, analysis was undertaken, since the resultant information might add to existing knowledge of faunal remains from urban contexts.

All artifacts recovered from the nuisance wharf were assigned to one provenience. A date range of 1850-1870 was assigned on the basis of ceramic analysis. The faunal assemblage suggests that little mixing occurred within the deposit; nearly fifteen per cent of the bones mend or articulate with another fragment.

The bones first were identified as to skeletal element and species. Avian species were identified by use of the comparative collection in the National Museum of Natural History in Washington, D.C. A minimum number of individuals (MNI) for each species was calculated by element and age of the animal at death. For example, two right cow tibiae represent two individuals. The MNI count would increase by one if there also was a left tibia with unfused epiphyses, indicating a third, immature individual. In an urban area, meat commonly was purchased at market; fowl usually were whole birds or almost so, but mammals were butchered into separate portions. For this reason, MNI counts were used to interpret the avian species but not the mammalian assemblage. Mammal bone fragments are more likely to represent cuts of meat rather than entire individuals. Therefore, elements were used to identify butchering units rather than individuals. The mammals represented in the faunal assemblage were all domestic species. They include cow (Bos taurus), pig (Sus scrofa), and sheep/goat (Ovis/Capra). A fourth, dog (Canis familiaris), most likely is commensal and not an example of dietary refuse. Two mammalian rib fragments were unidentified but most likely are pig or Artiodactyla. The absence of any wild species is probably attributable to the recovery techniques necessitated by the time constraints of the project. The bones of wild animals generally are smaller and easily might have been overlooked.

Bird remains were those of chicken (Gallus gallus), goose (Anser anser), wild goose (Anser sp.), and a duck (Anas sp.) that possibly was a small domestic individual. An unidentified bird radius exhibited a butcher cut, indicating that the bird was consumed. Finally, the assemblage contained two turtle carapace fragments. The absence of fish remains may be attributable to recovery technique.

Mammal bones constitute roughly 83 per cent of the assemblage. Of these, cow bones are most numerous, amounting to 75 per cent of the mammals (62 per cent of the entire assemblage). Pig bones constitute 14 per cent (12 per cent of the assemblage), and sheep/goat make up 3.5 per cent (3 per cent of the assemblage). Together, the unidentified and commensal species make up 7 per cent of the mammal remains (6 per cent of the entire assemblage).

Butchering units, or cuts of meat, were identified for the mammals. Castille et al. (1982) identified butchering

units and their relative values using a combination of tables that seemed most appropriate for mid-nineteenth century contexts. That method is used here. All of the cow bones had been sawed except for an unfused vertebral epiphysis, metapodials, and podials. The most numerous element was tibia; nine proximal shafts and one distal end were recovered. The shaft fragments were sawed crosswise across the bone and range in width from 2.5 cm to 8 cm. These tibia fragments represent hindshank portions of beef, as does a recovered distal femur fragment. This was the cheapest cut of beef available. Six rib blade fragments, sawed crosswise across the bone at both ends, represent either chuck or short rib units, both cuts of medium value. Four proximal femur shaft fragments were sawed similarly to the tibia fragments and range in width from 3 cm to 11 cm. These fragments come from round cut, also a medium value unit. Two acetabuli and an ischium represent rump portions of medium value. One cervical vertebra was recovered; it would have been a neck portion, one of the cheapest cuts available. Four additional vertebrae were recovered. They are unidentified as to location in the vertebral column and might represent short loin or rib, two of the most expensive cuts, or chuck, a medium value cut. A possible ilium fragment would come from a sirloin portion, the second most expensive unit of beef. Two longbone shaft fragments, sawed crosswise and about 1 cm in width, were too small to be identified. The remaining cow bones include several podials, possibly from hindshank portions, and two metapodials that had been split lengthwise down the bone.

The pig bones included a humerus and ulna, representing a picnic shoulder, one ilium, representing a loin portion, femur and tibia fragments from short cut ham portions, and one metapodial from a foot. A left maxilla may have been butchering refuse. The sheep/goat bones included a humerus and tibia.

Chicken and goose are the most numerous avian species, each comprising 30 per cent of the bird remains. After pig, they outnumber all other identified species in the faunal assemblage (approximately 4 per cent of the remains). The wild goose constitutes 20 per cent of the avian species (3 per cent of the assemblage) and the duck comprises 10 per cent of the birds (less than 2 per cent of the assemblage), as does the remaining unidentified bone. The MNI counts reveal a slightly different pattern. Domestic geese account for almost 43 per cent of the total MNI for birds. All other species each comprise 14.28 per cent of the bird MNIs. The turtle remains comprise about 3 per cent of the total assemblage and probably represent dietary refuse. Evidence of gnawing was present on several of the mammal and bird bones. No bones were burned, indicating that the meat

represented here had not been roasted.

Where possible, the relative age of individual animals was determined. Epiphyses were unfused on the pig and sheep/goat bones, indicating subadult ages. Of the eight cow bones for which age could be estimated, three were subadult. All of the bird bones were from adult specimens.

Domestic mammals dominate the assemblage; cow is the most numerous species represented, followed by pig and then sheep/goat. Avian species make up almost 15 per cent of the assemblage; domestic species, chicken and goose, are most numerous. The butchering units of beef are almost all of medium or inexpensive value, and the cheaper cuts predominate. This is at variance with the ceramic assemblage recovered from this same provenience and is as yet unexplained. While this collection clearly is too biased and small to offer real statistical evidence, species percentages closely parallel those of previously analyzed assemblages from nineteenth century urban sites in New Orleans.

All of the above data are reflected in Tables 7 - 11. In addition, inventory of faunal remains is reflected in Appendix III.

Summary

Monitoring of the pre-construction inspection trench for the two previously designated areas along the Jackson Avenue to Thalia Street floodwall alignment resulted in the identification of two sites. While substantial artifact numbers from 16 OR 116, the Robin Street nuisance wharf, provide a comparative data base on nineteenth century New Orleans, the 16 OR 117 artifact recovery was limited to a few artifacts, including brick rubble, structural remains, and one diagnostic bottle. Of these remains, only the bottle was retained for analytical purposes.

Site 16 OR 116 consisted of a deposit of concentrated artifactual remains resulting from refuse deposition at the nuisance wharf. Analyses have served to provide chronological, economic, and behavioral information on this collection. Chronological information, derived from the ceramic and glass subassemblages, as illustrated in Tables 1 and 2, was used in the calculation of a site date range. Manufacturers' marks and bottle embossments (Table 4) were employed to narrow this range, resulting in a hypothetical date range of 1850-1870 for the site. The one datable artifact from 16 OR 117 was a whole bottle dated 1896-1898.

Table 7

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TAXA REPRESENTED IN ASSEMBLAGE, 16 OR 116

=====

	<u>No.</u>	<u>%</u>	<u>MNI</u>	<u>%</u>
Mammals	57	82.61	8	50.00
Birds	10	14.49	7	43.75
Reptiles	2	2.90	1	6.25
TOTAL	69	100.00	16	100.00

KEY: MNI = Minimum Number of Individuals

Table 8**TOTAL SPECIES, 16 OR 116**

	<u>No.</u>	<u>%</u>
Bos tauros (Cow)	43	62.32
Sus scrofa (Pig)	8	11.58
Ovis/Capra (Sheep/Goat)	2	2.90
Canis familiaris (Dog)	2	2.90
Unid. Mammal	2	2.90
Gallus gallus (Chicken)	3	4.35
Anser anser (Domestic Goose)	3	4.35
Anser sp. (Goose)	2	2.90
Anas sp. (Duck, possibly domestic)	1	1.45
Unid. Bird	1	1.45
Unid. Turtle	2	2.90
TOTAL	69	100.00

Table 9

=====

MAMMALIAN SPECIES, 16 OR 116

=====

	<u>No.</u>	<u>%</u>	<u>MNI</u>	<u>%</u>
Bos tauros	43	75.44	4	57.14
Sus scrofa	8	14.03	2	28.57
Ovis/Capra	2	3.51	1	14.29
Unid./Commensal	4	7.02	-	-
TOTAL	57	100.00	7	100.00

KEY: MNI = Minimum Number of Individuals

Table 10

=====

AVIAN SPECIES, 16 OR 116

=====

	<u>No.</u>	<u>%</u>	<u>MNI</u>	<u>%</u>
Gallus gallus	3	30.00	1	14.28
Anser anser	3	30.00	3	42.86
Anser sp.	2	20.00	1	14.28
Anas sp.	1	10.00	1	14.28
Unid.	1	10.00	1	14.28
TOTAL	10	100.00	7	99.98

KEY: MNI = Minimum Number of Individuals

Table 11

DIETARY REMAINS, 16 OR 116

	<u>No.</u>	<u>%</u>
Domestic Mammals	53	81.54
Domestic Fowl	7	10.77
Wild Fowl	3	4.61
Reptile	2	3.08
TOTAL	65	100.00

Comparative analyses of ceramic artifacts and faunal remains with collections from contemporaneous sites in the City of New Orleans were conducted to assess this collection's relative status. Results of these analyses differed. The analysis of the selective faunal collection from 16 OR 116 indicated a predominance of the cheaper cut of meats characteristic of medium to low economic status. Ceramic analysis results indicated a high to medium economic status. Based on manufacturers' marks, additional comparisons among ceramic subassemblages for these sites were conducted to ascertain if the 16 OR 116 nuisance wharf subassemblage was reflection of city wide marketing practices. The ceramic subassemblage from the 16 OR 116 also was compared to the national ceramic marketing preference for imported English wares, and it was found to reflect the trends exhibited by the nation at large (Worthy 1982:344).

In summary, the results of all analyses conducted on the 16 OR 116 artifacts denote a mid- to late nineteenth century assemblage. This assemblage represents the refuse of a moderately high economic status region or neighborhood. The one date-sensitive artifact from site 16 OR 117 dated from the late nineteenth century.

CHAPTER VII

CONCLUSIONS AND RECOMMENDATIONS

This report has presented the results of archeological monitoring of the general contractor's pre-construction inspection trench along the Jackson Avenue to Thalia Street floodwall alignment, in New Orleans. Monitoring of two segments of this alignment was conducted in October and December, 1987. Archival information, field observations, and laboratory analyses subsequently were applied in assessment of the historical associations and research potential of subsurface historic archeological remains encountered during the course of this monitoring.

Previously compiled archival and historical data were used to formulate an assessment of the nature and location of potentially significant former standing structures and activity areas along the floodwall alignment (Goodwin et al. 1985; Reeves and Reeves 1983). Delineation of these historic areas was tied to a review of developmental and economic themes significant in the history of the region (Goodwin et al. 1985); prominent among these themes was the growth and development of the Port of New Orleans. As specified in the monitoring plan, field crews were provided with historic maps and block-by-block listings of potentially significant historic sites and structures, so that associated remains could be recognized and recorded in the field. Laboratory analyses were designed to assist in assessment of the integrity of subsurface archeological remains; to establish a general chronological framework for the riverfront area of New Orleans; and, to document any relationships between recovered artifacts and archivally identified historic structures along the right-of-way.

Monitoring of the Jackson Avenue to Thalia Street floodwall alignment located two subsurface historical archeological sites. One site was recovered from the trench at the end of Robin (Euterpe) Street (16 OR 116); the other was documented at the downriver end of the St. James to Market Street alignment (16 OR 117).

National Register Eligibility

Site 16 OR 116 consisted of an intact dense concentration of mid- to late nineteenth century nuisance wharf refuse. Little is known about this type of site. Although the existence of nuisance wharves, as cited in this study, is documented in the City of New Orleans ordinances

and sanitation reports, is recorded on maps, and is discussed briefly in various historical accounts, none of these sources describe the physical configuration of nuisance wharves, nor do they discuss the precise nature of their use. Furthermore, no previous archeological investigations have documented the remains of a nuisance wharf. Thus, there are no expectations of what classes of remains might be present, what activities are represented, or how they might reveal behaviors of this period.

Preliminary evaluation of data showed that ceramic, glass, shell, metal, fauna, flora, and building material classes of artifacts and ecofacts were included in the 16 OR 116 assemblage. When considered as representative of a section of the city, rather than of an individual occupation, this assemblage provided a unique comparative data base. Results of analyses from contemporaneous sites could be compared against this assemblage to determine if the observed chronological behavior and economic patterns reflected the city at large. In addition, results of the 16 OR 116 analysis could be examined to see if they reflect documented national trends, as well as provide historical information on sanitation collection and refuse disposal during the mid- to late nineteenth century.

In accordance with the research goals of the State Plan, this site provided the opportunity to "Examine the change in material culture of Louisiana resulting from technological advances in the late nineteenth century" (Smith 1983:275). Also, in compliance with the preservation goals of the State Plan, archeological monitoring at this site provided the unique opportunity to test excavate an example of a nuisance wharf that would afford basic data about an entire class of sites and aid in determination of National Register eligibility (Smith 1983:275).

Therefore, the integrity of the location, design, setting, materials, workmanship, feeling, and association of the site provide substantial reasons to consider this site significant under Criterion D of 36 CFR 60.4. However, the site is not in danger of further direct construction impacts, because further floodwall construction will be confined to the area of the already excavated inspection trench. All intact resources located on the landward side of the floodwall alignment will remain preserved in place. Therefore, although the site meets the National Register criteria for significance, no further work is recommended at this time.

Site 16 OR 117 represents the remains of a late nineteenth to early twentieth century structure. This site consisted of a number of large intact structural remains and

a few associated artifacts, such as brick fragments and a whole bottle. Subsurface structural remains probably were related to the use of the riverfront area as a wharf during the late nineteenth to early twentieth century. The paucity of artifacts renders research potential minimal. Therefore, under the criteria outlined in 36 CFR 60.4, site 16 OR 117 does not appear to possess the quality of significance. No further work is recommended there.

The two archeological sites documented in this study (16 OR 116-117) are described in Chapter V. While components of 16 OR 116 reflected several successive activities in this area, a definite correlation was established between recovered artifactual remains and the historic Robin Street nuisance wharf.

The riverfront of the Port of New Orleans historically has been the venue of the greatest and most continuous economic activity in the city. Consequently, ground surfaces in some areas have been subjected to periodic, if not continual, modification. Destructive processes along the river reaches have included the purposive demolition of relict structures, construction activities related to the modernization of port and attendant commercial facilities, and the excavation, fill, and stabilization of the lengthy railroad rights-of-way that dominate the present landscape.

For 16 OR 117, there is no clear-cut correlation between material recovered during field work and the Municipal Ice Manufacturing Company, the potentially significant historic structure identified during archival research. Stratigraphic observations indicate that a substantial amount of fill has been deposited within the area of the present right-of-way. This probably is a result of successive episodes of embankment construction for the railroads. No further monitoring is warranted for any remaining floodwall portions of the St. James to Market Street block during Phase II of construction.

Thus, analysis of data generated during archeological monitoring of the Jackson Avenue to Thalia Street floodwall alignment pre-construction inspection trench identified one site possessing significant cultural resources (36 CFR 60.4), but determined no adverse project impacts that would require further work at this site. The remaining site was felt to possess no significant cultural resources that have the potential "to yield information important in prehistory or history" [36 CFR 60.4 (d)]. As a result, no mitigative activities should be required for either site recorded in the alignment.

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APPENDIX I
REVISED SCOPE OF SERVICES

REVISED
SCOPE OF SERVICES

Archeological Monitoring of the Jackson Avenue to Thalia
Street (Phase 1) Floodwall Project in the City of New Orleans,
Orleans Parish, Louisiana

1. Introduction. The U.S. Army Corps of Engineers, New Orleans District (NOD), plans to construct a floodwall along the left-descending bank (east bank) of the Mississippi River in the City of New Orleans (Attachment 1). Construction is scheduled for August, 1987. Based on previous archival research in the subject area, as well as past monitoring efforts in other New Orleans floodwall alignments, it is believed that portions of the impact area may contain significant historic archeological deposits which may be eligible for listing on the National Register of Historic Places.

NOD requires that intensive archeological field monitoring and recordation be conducted concurrently with the general construction contractor's initial inspection trenching in order to mitigate adverse impacts to potentially significant cultural resources. Monitoring will be conducted along the entire project reach. Monitoring will therefore provide an opportunity to identify significant cultural resources that will remain preserved in place landward of the Jackson Avenue to Thalia Street floodwall.

2. Description of the Study Area. The overall project is called the "Mississippi River Levees, Orleans Levee District, Item M-97.2-L to M-95.6-L, Jackson Avenue to Thalia Street Floodwall, Orleans Parish, Louisiana, Phase 1 Contract". The floodwall project work consists of the construction of a reinforced concrete floodwall, swing gates, roller gates; furnishing and driving steel piling, prestressed concrete piles, timber piles; modifications to various utilities; construction of a storm drainage system; railroad falsework; clearing and grubbing, fertilization and seeding; and all other incidental work. The study area, however, is confined to the initial inspection trenching or other limited inspection excavations within the project right-of-way.

The subject floodwall extends from Wall Line Station 0+00 (Baseline Station 333+65) at its upriver limit to Wall Line Station 53+87.53 (Baseline Station 387.65) downriver, for a total length of 5387 feet. The floodwall runs parallel to the inner track of the NOPBR line approximately 10 feet landward of the inner track rail. No standing structures are located within the 25-foot easement.

Based on the 1985 monitoring plan, the Jackson Avenue to Thalia Street Phase 1 alignment may contain significant historic structures in two localities: 1) Foot of Robin Street (present-day Euterpe Street), and 2) St. James to Market Streets (Attachment 2).

3. Background Information. Because New Orleans is Louisiana's largest city and is of great historic and cultural value to the State as well as to the Nation, all efforts shall be made to record and protect significant cultural resources during floodwall construction. The State of Louisiana's Division of Archeology has identified "Historic New Orleans" as a major theme to be considered during preservation planning. The State also believes that New Orleans is a place to set positive examples of how preservation and protection of significant cultural resources can work in conjunction with progress.

NOD has determined that the Jackson Avenue to Thalia Street floodwall (Phase 1) project may have an effect on properties eligible for inclusion in the National Register of Historic Places. The proposed floodwall is located in close proximity to the Vieux Carre Historic District, a National Historic Landmark; the project lies within the bounds of the Lower Garden District which was listed in the National Register in 1972.

NOD has executed a Memorandum of Agreement (MOA) with the Louisiana State Historic Preservation Officer and the Advisory Council on Historic Preservation (Attachment 3). The MOA outlines NOD's obligations concerning the preservation of historic resources in the New Orleans floodwall project area. The MOA requires NOD to prepare a detailed historical and archival assessment to document historic land use changes in the project area (which has been completed), as well as to investigate and evaluate localities which may contain significant cultural resources in the impact areas at the time of actual floodwall construction (the work to be performed under this delivery order).

Archeological sites in urban settings are often difficult to identify and evaluate in advance of construction because they are usually sealed beneath modern structures, fill, and paving, etc. It is therefore not practical to physically determine the existence or non-existence of archeological sites in the floodwall project area by standard pedestrian survey methods. Instead, the probability or improbability of site existence is largely based on extensive archival studies. These studies have been conducted under contract with NOD. Previous monitoring efforts in the Port of New Orleans vicinity, as well as archeologically sensitive areas to be monitored in the subject alignment, are described in the following documents:

* Archeological Monitoring of the Montegut Street to Independence Street Floodwall Project in the City of New Orleans (in preparation) by R. Christopher Goodwin and Associates, 1987.

* Archeological Monitoring of Three Floodwall Projects in the City of New Orleans by R. Christopher Goodwin and Associates; July 1986.

* Archeological Monitoring Plan for Four Floodwall Projects in the City of New Orleans by R. Christopher Goodwin and Associates; May 1985.

* Archival Evaluation of Floodwall Alignments: New Orleans, Louisiana by Sally K. Reeves and William D. Reeves; November 1983.

4. General Nature of the Work to be Performed. Archeological monitoring can be defined as a means of locating, evaluating and assessing impacts to cultural resources during actual project construction. Monitoring is normally implemented in a project area when there is a probability that significant cultural resources will occur. Close coordination must be maintained between the archeological crew and the general construction crew.

The Contractor shall perform intensive archeological field monitoring in two localities of the Jackson Avenue to Thalia Street (Phase 1) floodwall. Archeological field work will be conducted concurrently with excavation of the inspection trench. Inspection trenches are excavated in order to locate subsurface obstructions prior to construction of the floodwalls. An inspection trench is generally excavated to a depth of 5 feet below surface (approximately 1.5 meters). In all cases, the trench penetrates the culturally sterile subsoil and reaches the depth necessary to ascertain the base of any obstruction encountered. The inspection trench generally ranges from 3 to 5 feet in width (approximately 0.9 - 1.5 meters), but is expanded when deeply buried obstructions are encountered.

The study will utilize previous NOD-sponsored studies in the Port of New Orleans vicinity to the maximum extent possible. Monitoring and recordation will be performed within the context of these studies and will include subsurface testing where appropriate and the evaluation of identified cultural resources against the National Register's criteria of significance (36CFR60.4). All efforts shall be made to limit archeological excavation once the significance of archeological resources can be determined. Test excavations shall be limited to provide sufficient information for research and interpretation needs concerning any significant cultural resources that will be preserved in place landward of the floodwall. The Contractor shall be responsible for all data analysis and report preparation and reproduction.

5. Study Requirements. The evaluation will be conducted utilizing current professional standards and guidelines, including, but not limited to:

- *the National Park Service's draft standards entitled, "How to Apply the National Register Criteria for Evaluation" dated June 1, 1982;
- *the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation as published in the Federal Register on September 29, 1983;
- *Louisiana's Comprehensive Archeological Plan dated October 1, 1983;
- *The Advisory Council on Historic Preservation's publication entitled, "Treatment of Archeological Properties: A Handbook" dated November 1980; and

*The Advisory Council on Historic Preservation's Section 106, Update/3 entitled, "Manual of Mitigation measures (MOMM)" dated October 12, 1982.

The work to be performed by the Contractor will be divided into two phases: (a) Monitoring and/or Recordation, and (b) Data Analysis and Report Preparation.

a. Phase 1: Monitoring and/or Recordation

All fieldwork for this delivery order will be guided by the monitoring plan prepared by R. Christopher Goodwin and Associates, entitled Archeological Monitoring Plan for Four Floodwall Projects in the City of New Orleans submitted to NOD in May 1985. The basic field methodology described in this report will be employed for the Jackson Avenue to Thalia Street floodwall project (reference Chapters VI and VII; Appendixes 1-3).

If field conditions warrant a diversion from the prescribed methodology, justifications for alternate methodologies must be supplied to the Technical Advisor or to the COR.

The Foot of Robin (present-day Euterpe St.) Street and St James to Market Streets were areas recommended by Goodwin and Associates to be intensively monitored for predicted significant cultural resources (Attachment 4). The Foot of Euterpe Street is located approximately 50 feet on either side of Wall Line Station 47+00, which represents the approximate area where the centerline of Euterpe Street intersects the floodwall alignment. The area to be monitored within St. James to Market Street lies between Wall Line Station 27+50 to Wall Line Station 30+15.61; a no-work area begins at the downriver end of the monitoring area (see amended drawing 8 of 68) at Market Street Station.

The Contractor will be given 10-day notice that the inspection trenching will begin. Contract personnel should be on call in order to receive notice to begin monitoring the two reaches specified for study. Short notice may be given the Contractor for this work.

The Contractor will abide by all specifications set forth for the subject floodwall project. NOD will provide the Contractor one copy of each document pertaining to specifications (Attachment 5) as well as one complete set of engineering drawings which relate to the project (Attachment 6).

Close coordination with the NOD construction inspectors and NOD project engineers, as well as, with the General Contractor will be mandatory, if use of a pump is necessary. A pump will be rented and utilized by the Contractor only if needed.

Cultural resources monitoring and/or recordation will not be conducted near any currently used railroad tracks. All investigations should be located at least 8 feet away from the tracks.

The Contractor will not be responsible for shoring or building support structures or retaining walls for archeological excavation trenches. Work of this nature is not anticipated and all efforts should be made to avoid such situations, if possible.

Identification badges or names displaying Contractor's name on hard hats are mandatory for all Contractor or personnel for the duration of the fieldwork.

The Contractor's archeological crew will work only during the General Contractor's regularly scheduled work hours. The total trenching time is estimated to last 22 working days and is based on estimates from the New Orleans Resident Office. The two localities to be monitored should take 4 days trenching time. Cost estimates are based on a 4-day field schedule (2 days for St. James to Market Street and 2 days for the Foot of Euterpe Street).

A minimum of two persons will be required to monitor any given study area. If more personnel are needed for a given area, this will be acceptable if adequate justification can be made.

If modern land use processes have destroyed the predicted archeological resources in areas recommended for monitoring, then continuous monitoring of the inspection trench in these areas would not be warranted. Consultation with the Technical Representative shall be made concerning such matters.

The archeological team conducting the monitoring operations shall report any finds of major significance to the Contracting Officer's Representative or to the Technical Representative. The excavation of the inspection trench can be halted temporarily at a specific location to allow the field archeologist to determine the possible significance of material before it is disturbed.

Should extensive excavation beyond the limits of the inspection trench be required in order to determine or confirm the identification and significance of a resource discovered in the trench, such investigations are beyond the limits of this delivery order. If the contractor concludes that such additional work is necessary, each instance will be reported and justified to the Technical Representative and in the management summary. Where structural foundations or associated remains are located behind (on the landward side of) the proposed floodwall, features probably will be preserved in place. Where no archeologically significant remains are encountered in the monitored blocks, no further work is warranted.

The intent of the 1985 monitoring plan is to provide a clear and explicitly stated set of procedural guidelines for the most efficient resolution of in-field problem resolution. This plan was designed to avoid unnecessary

delays during actual construction work and to minimize any confusion as to the proper mitigation alternatives to be implemented. Where additional construction is scheduled in areas of significant archeological remains, mitigation steps will be recommended for those cultural resources.

A management summary reporting the results of the monitoring shall be submitted to the COR within 2 weeks after completion of all fieldwork.

b. Phase 2: Data Analysis and Report Preparation. All Phase 1 data will be analyzed using currently acceptable scientific methodology. The Contractor shall catalog all artifacts, samples, specimens, photographs, drawings, etc. utilizing the format currently employed by the Louisiana Division of Archeology and Historic Preservation. The catalog system will include site and provenience designations.

The Contractor shall provide descriptions of geomorphology, ecology, and cultural history, as well as a summary of previous research. This information shall be integrated with the research results, survey results, and laboratory analyses to produce a graphically illustrated, scientifically acceptable draft report. Project impacts on all cultural resources located during monitoring will be assessed.

All cultural resources located in the study area will be evaluated against the National Register criteria of significance contained in Title 36CFR60.4 to determine eligibility for inclusion in the National Register of Historic Places. The Contractor shall provide justification of the criteria used and a detailed explanation of why each resource does or does not meet the National Register and assessed to be impacted by the subject project, the Contractor shall evaluate and recommend mitigation alternatives. Inferential statements and conclusions will be supported by documentation where possible. Specific requirements for the draft report are contained in Section 6 of this Scope of Services.

6. Reports

a. Phase 1 Management Summary. Two copies of a management summary, one set of 7.5 minute quadrangle maps accurately delineating site locations, and one set of site forms for all located cultural resources will be submitted to the COR within 2 weeks after completion of fieldwork. The management summary will succinctly report the results of monitoring, i.e., number, type, brief description, and assessment of project-related impacts for all cultural resources located and preliminary assessments of site significance. This summary report is not intended to be a lengthy interim report, but shall contain enough information to serve as a planning aid and a means of disseminating information immediately to the COR.

b. Draft and Final Reports (Phases 1 & 2). Six copies of the draft report integrating both phases of this investigation will be submitted to the COR for review and comment within 14 weeks after completion of fieldwork. Along with the draft reports, the Contractor shall submit one

copy of support documentation for each cultural resource which the Contractor recommends as eligible for inclusion in the National Register of Historic Places. This documentation will follow the format and contain all the data required by the Guidelines for Level of Documentation appended to Title 36 CFR Part 63. The Contractor shall also provide recommendations for any further mitigation of each cultural resource that will be preserved landward of the floodwalls recommended as eligible for the National Register. The written report shall follow the format set forth in MIL-STD-847A with the following exceptions: (1) separate, soft, durable, wrap-around covers will be used instead of self covers; (2) page size shall be 8-1/2 x 11 inches with a 1-1/2-inch binding margin and 1-inch margins; (3) the reference format of American Antiquity will be used. Spelling shall be in accordance with the U.S. Government Printing Office Style Manual dated January 1973. The COR will provide all review comments to the Contractor within 8 weeks after receipt of the draft reports. Upon receipt of the review comments on the draft report, the Contractor shall incorporate or resolve all comments and submit one preliminary copy of the final report to the COR within 4 weeks. Upon approval of the preliminary final report by the COR, the Contractor will submit 30 copies and one reproducible master copy of the final report to the COR within 4 weeks. Included as an appendix to the Final Report will be a completed and accurate listing of cultural material and associated documentation recovered and/or generated which the Principal Investigator considers worthy of preservations. In order to preclude vandalism, the draft and final reports shall not contain specific locations of archeological sites. Site specific information, including site forms, black and white photographs and maps, shall be included in an appendix separate from the main report. The Contractor shall submit 6 copies of this separate appendix with the draft report, and 10 copies and one reproducible master copy with the final report.

7. Attachments

1. Vicinity of proposed Jackson Avenue to Thalia Street (Phase 1) floodwall, Orleans Parish, Louisiana
2. Map of project vicinity showing blocks recommended for monitoring between Jackson Avenue and Thalia Street
3. MOA for Mississippi River Floodwalls, dated 10-19-82
4. Monitoring Information: Jackson Avenue to Thalia Street
- *5. Specifications for Jackson Avenue to Thalia Street Floodwall (Phase 1), U.S. Army Corps of Engineers, New Orleans District (Solicitation NO. DACW29-87-B-0087; Solicitation Date: 4 June 1987).

*6. Plans for MRL Item M-97.2-L to M95.6-L, Orleans Levee District, Orleans Parish, Louisiana. Jackson Avenue to Thalia Street Floodwall (Phase 1 Contract) (File No. H-4-30159), March 1987.

*Previously furnished

APPENDIX II
FAUNAL REMAINS INVENTORY

APPENDIX II

FAUNAL REMAINS INVENTORY

Bos taurus

- 1 acetabulum, lf, sawed
- 2 frags. acetabulum (mend), rt, sawed
- 1 ilium?, unid. side, sawed
- 1 ischium, unid. side, sawed, gnawed
- 1 femur, unid. side, proximal epiphysis, unfused
- 3 femur, lf, proximal shaft, sawed
- 1 femur, rt, proximal shaft, sawed
- 1 femur, unid. side, distal end, fused epiphysis, sawed
- 7 tibiae, rt, proximal shaft, sawed
- 2 tibiae, lf, proximal shaft, sawed
- 1 tibia, rt, distal end, unfused epiphysis, sawed
- 1 tibia, lf, distal end, fused epiphysis, sawed
- 1 astragalus, lf, proximal half, chopped?, articulates with
above tibia
- 1 astragalus, lf, complete
- 1 calcaneus, lf, complete
- 1 unid. podial, complete
- 1 metatarsal, rt, proximal half, lateral side, fused
epiphysis
- 1 metacarpal, rt, proximal half, lateral side, fused
epiphysis
- 1 radius, rt, proximal end, fused epiphysis, sawed
- 1 ulna, rt, proximal shaft, sawed, articulates with above
radius
- 2 unid. long bone, shaft, sawed
- 6 unid. rib, blade, sawed
- 1 cervical vertebra, unfused epiphysis, sawed
- 1 cervical vertebra epiphysis, unfused, articulates with
above vertebra
- 4 unid. vertebra, sawed

Sus scrofa

- 1 maxilla, lf
- 1 ilium, lf, unfused epiphysis
- 1 humerus, rt, proximal end, unfused epiphysis
- 1 ulna, rt, proximal half, unfused epiphysis, butcher cuts
- 1 femur, lf, proximal half, unfused epiphysis, butcher cuts
- 1 femur, lf, shaft, butcher cuts, gnawed
- 1 tibia, lf, proximal end, posterior side, unfused epiphysis,
sawed
- 1 metapodial, complete, unfused epiphysis

Ovis/Capra

1 humerus, lf, shaft, gnawed
1 tibia, rt, proximal end, unfused epiphysis, butcher cuts

Canis familiaris

1 femur, lf, complete, fused epiphyses
1 femur, rt, complete, fused epiphyses

Sus/Artiodactyla

2 rib, unid.

Gallus gallus

1 humerus, lf, complete, fused epiphyses
1 tibiotarsus, rt, complete, fused epiphyses
1 scapula, lf, complete, fused epiphysis

Anser anser

1 humerus, lf, complete, fused epiphyses, butcher cuts,
gnawed
1 humerus, lf, complete, fused epiphyses
1 humerus, rt, shaft (larger than above elements)

Anser sp.

1 ulna, rt, proximal end and shaft, fused epiphysis
1 radius, rt, complete, fused epiphyses

Anas sp.

1 humerus, rt, complete, fused epiphyses, butcher cuts,
gnawed

Unid. Bird

1 radius, lf, proximal end and shaft, fused epiphysis,
butcher cut

Turtle, Unid.

2 carapace frags., heavily sculpted, articulating